| | | | |
|---|---|---|---|
| **ERIC Document Resume** | See Instruction Sheet | DATE OF RESUME | DATE RECEIVED |

**A. PUBLICATION DATA**

1. ERIC NUMBER: ED001866

2. ORIGINATOR CONTROL NO(S).: N.A.

3. IDENTIFICATION NO.: N.A.

4. AUTHOR(S): Gibbony, Hazel L.

5. TITLE OF DOCUMENT ABSTRACTED: Enrichment -- Classroom Challenge

6. PUBLICATION TITLE: N.A.

7. EDITOR(S): N.A.

8. PLACE OF ORIGIN

ORG. ST. E.E. Holt, State Supt. of Public School Instruction

CITY, STATE Columbus, Ohio

TELE. EXT.

INST/LOC CODE

9. PUBLISHER OR SOURCE: State Board of Education, Ohio

| 10. VOL. | 11. PAGES | 12. MO./YR. | 13. TOTAL PP. |
|---|---|---|---|
| N.A. | N.A. | 1962 | 90 |

DO NOT WRITE IN SPACE BELOW

MICROFILM COPY AVAILABLE YES ☒ NO ☐

COPYRIGHT GRANTED YES ☒ NO ☐

COPYRIGHT RELEASE FILED YES ☒ NO ☐

TYPE OF REPORT
- PROPOSAL ☐
- IN-PROGRESS ☐
- FINAL ☒
- FOLLOW-UP ☐

OTHER ERIC REFERENCES:

ERIC SATELLITE CODE

**B. INDEXING DATA**

14. SUBJECT AREA

15. TYPE OF ENDEAVOR: Curriculum Guide

| | | | |
|---|---|---|---|
| 16. INDEXING TERMS (6-12) | field trips | teacher role | science |
| elementary school | individual projects | student role | mathematics |
| secondary school | problem-solving approach | language | foreign language |
| bulletin board | library facilities | social studies | |

17. ABSTRACT (MAX. 250 WORDS)

Suggestions for enrichment teaching are presented. The suggestions are divided under elementary classroom and secondary school subjects.

Some of the suggestions for elementary school are bulletin boards, field trips, individual projects, and discussions. These suggestions apply to language arts, social studies, science, arithmetic and foreign languages.

Enrichment ideas for secondary school subjects include problem - solving approach, student suggestions, flexible classroom arrangment, library facilities, and work in small groups. These suggestions are applicable to English, social studies, science, mathematics, modern languages, and Latin.

Supplementary library activities, audio-visual materials, and a selected bibliography are included.

ERIC No.

18. SOURCE OF ABSTRACT

**C. FUNDING DATA**

19. SUPPORTING ORGANIZATION

20. DIVISION OR DEPT.

21. CONTRACT NO.

PROJECT NO.

22. TOTAL COST OF PROJECT

23. DURATION OR PROJECT

U.S. Department of Health, Education, and Welfare
Office of Education

2

ED001866

TD 3

# E[illegible]NT
# C[illegible]
# C[illegible]

STATE BOARD of EDUCATION · OHIO ·

Issued by E. E. Holt, State Superintendent of Public Instruction
Columbus, Ohio
1962

REPRINTED BY PERMISSION
U. S. DEPARTMENT OF HEALTH, EDUCATION AND WELFARE
OFFICE OF EDUCATION
THIS DOCUMENT HAS BEEN PRINTED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

# ENRICHMENT —
# *CLASSROOM CHALLENGE*

By HAZEL L. GIBBONY
*The Ohio State University*

STATE BOARD of EDUCATION • OHIO •

**Prepared under the direction of**
**R. A. HORN**
**Director, Division of Special Education**
**Columbus, Ohio**
**1962**

BLANK PAGE

The F. J. Heer Printing Company
Columbus 16, Ohio
1962
Bound by the State of Ohio

# FOREWORD

THE STATE OF OHIO'S program for the academically gifted continues to produce materials for school personnel. This program was made possible through an appropriation to the Ohio Department of Education by the 103rd and 104th General Assemblies.

This book was prepared by Dr. Hazel L. Gibbony of the Bureau of Educational Research and Service, The Ohio State University. The original proposal for the project was drawn up by Dr. Viola Cassidy of the Area of Exceptional Children of the Department of Psychology, The Ohio State University. Fawzia Hussein Elmaddah assisted in the selection and summarization of the enrichment activities listed, Mary S. Hevener in the preparation and organization of the final manuscript. The cover was designed by Fred Saunier.

E. E. HOLT
*Superintendent of Public Instruction*

# PREFACE

THE TERM *enrichment* has long been associated with instructional programs designed to meet the needs of all children. It has also been widely used in connection with the education of the gifted. Yet its meaning has always been somewhat nebulous.

One of the major purposes of this publication is to put into concrete form enrichment activities. Teachers and others interested in enriching the education of gifted children should find these suggestions of value.

Much of the credit for the state's Program for the Academically Gifted should go to the State-wide Advisory Committee. This group has spent considerable time and effort in advising those of us who are developing the program.

The majority of gifted children will continue to be educated within a regular group. Because of this, Dr. Gibbony's efforts are of particular importance to teachers throughout Ohio.

R. A. HORN
*Director, Division of Special Education*

T. M. STEPHENS
*Educational Specialist, Academically Gifted*

# CONTENTS

*Page*

**INTRODUCTION** 1

**PART 1 — ENRICHMENT IN THE ELEMENTARY CLASSROOM**

General Suggestions 3
Language Arts 4
Social Studies 11
Science 20
Arithmetic 33
Foreign Languages 41

**PART II — ENRICHMENT IN SECONDARY SCHOOL SUBJECTS**

General Suggestions 46
English 47
Social Studies 54
Science 61
Mathematics 66
Modern Languages and Latin 72

**THE LIBRARY AND ENRICHMENT** 77

**AUDIO-VISUAL MATERIALS IN ENRICHMENT** 80

**SELECTED BIBLIOGRAPHY** 84

**USER'S NOTES** 87

BLANK PAGE

# INTRODUCTION

ENRICHMENT HAS BEEN described as just another way of meeting individual needs, of selecting and organizing appropriate learning experiences. This is what every teacher wants to do, whether he is working with students who are grouped by ability or is teaching in the regular classroom. Enrichment should mean an increase in the breadth and depth of the students' experiences rather than simply "more of the same thing" for the fast learner. It is unrealistic and limiting to assume that enrichment is only for the gifted student, or even that it is an alternative to or a substitute for ability grouping. The imaginative teacher will usually find himself "enriching" the program not only for the gifted students but for the entire class.

The author hopes, therefore, that this collection of enrichment ideas and activities will be useful to all teachers. Some of the suggestions, even within subject areas, are rather general and may involve an entire class. This book includes, however, hundreds of specific ideas and activities which may be carried out by individuals or by small groups of students. These activities were obtained from many sources, some of which are listed in the selected bibliography. They were chosen on the basis that they seemed to experienced teachers to be worthwhile and interesting. They have been described as briefly as possible, and complicated suggestions have sometimes been divided into several activities.

## Suggestions for Using This Book

The most important suggestion is one which is frequently made to teachers—*adapt* rather than *adopt.* Not only can activities be adapted to your own students, but sometimes ideas in one subject area can be adapted to another. A science activity can perhaps be modified to fit into the English program; a suggestion listed for foreign languages might also be utilized in a social studies class. For this reason, and also because both teachers and students can "browse for ideas" in this book, it is deliberately not indexed by topics or by types of activity.

The enrichment suggestions are, however, divided into two large sections—one for the elementary classroom and the other for secondary school subjects. A teacher in the upper elementary grades would probably wish to explore some of the secondary school areas. Similarly, many ideas listed in the elementary school section could be expanded in breadth or depth for secondary school use.

The activities are numbered within each subject area to differentiate separate activities and to make it easy to list them for future use or for student reference. Wherever possible, related ideas are grouped. For example, suggestions which involve letter writing will appear together rather than scattered throughout the language arts section.

The user can work out his own combinations or modifications of these ideas and some of these suggestions may lead to other activities. Adaptations and additional activities can be recorded in the *User's Notes* section at the end of the book. This will help to build a valuable "idea file" of enrichment activities especially suited to a particular teaching field or to a certain student group.

# Part I – ENRICHMENT IN THE ELEMENTARY CLASSROOM

## General Suggestions

IT IS THE CLASSROOM teacher who initiates any enrichment activity or program. This teacher needs a broad general background, willingness to guide rather than to dominate, insight into the abilities and interests of students, and a genuine desire to provide for individual differences. Such a teacher may be a source of ideas and encouragement, but will stress qualitative rather than quantitative enrichment. Emphasis upon problem-solving activities and upon finding answers to thought-provoking questions (sometimes formulated by the students themselves) will lead to development of skill in methods of research and reporting.

Since elementary teachers work intensively with smaller groups for longer periods of time than do secondary teachers, they may tend to know more about individual students. Being generalists rather than specialists, they see the total school program and may have more opportunity to help students make relationships and integrate experiences. This aids teacher-pupil planning for enrichment, in which the teacher can capitalize upon hobby interests, suggest participation in extracurricular activities, assign individual or committee responsibilities.

The elementary classroom can often be rather easily adapted to enrichment activities. Furniture can be rearranged to provide work centers for individuals or for small groups. There can be a "science corner," or one for art, reading, or some other special interest. A small classroom museum can be organized. A wealth of materials for independent activities can be collected, and these need not be expensive either in money or teacher time. Ingenious use can be made of ordinary facilities or even of scrap materials.

A variety of experiences for independent and individualized work can be provided through enrichment suggestions or ideas. These can be kept on cards in a box, in folders in a file drawer, in a loose-leaf notebook, on a special bulletin board. Collections of this sort may be started by the teacher and expanded by student ideas. Students with some skill in reading can be referred directly to this handbook.

An elementary curriculum based upon large teaching units (centers of interest, problem situations, activity units) lends itself to student participation on various levels of difficulty. The gifted student may explore topics not usually included in the curriculum unit. He may study the general topic more intensively, locate source materials for class use, summarize information and report to the group. Able learners can utilize a daily "free period" for enrichment activities while other class members may be strengthening basic skills.

In Part I of this book, activities are suggested for five large areas of the elementary curriculum. Art and music are not included, since they are felt to be enrichment experiences in themselves, but there are many suggestions involving art and music activities. The *Helpful References* at the end of each subject area include sources of additional enrichment activities or of material which relates to such activities. Many of these publications are inexpensive enough to be added to the classroom library.

## Elementary — LANGUAGE ARTS

Activities designed for the gifted student in the language arts should be aimed at the development of those skills in reading and oral and written expression which will aid him most in his other learning. For example, the gifted student can begin very early to develop basic research skills, learn to use the library, locate information, and use reference material. He should develop skill in taking notes from material read and crediting sources in reports. In reading he can become discriminatory, determining whether material is fact or opinion, accurate or inaccurate, by comparing sources and checking on the background of the author.

The gifted student can use many different reading materials such as supplemental books on a higher grade level, newspapers, news magazines, editorials, supplemental science books, and current magazines. He should be encouraged to read a wide variety of material and explore new interests as well as to read in connection with hobbies and special interests.

Offering the student a wide choice of good books (classics and the best of today's children's literature) is effective in developing his appreciation of literature. New and interesting ways to report on books, and dramatizing stories or playing games with book titles will arouse interest in more independent reading.

Creative writing is an important area of enrichment for the gifted. The bright child should be encouraged to express his thoughts and ideas on paper. Writing stories, poetry, factual information, and letters are all worthwhile. Publishing class newspapers, poetry booklets, storybooks with original stories are possibilities for encouraging creative writing. If facilities permit, the gifted student can begin early to learn to use a typewriter.

Oral and written reports of all kinds give the student an opportunity to share his learning and to express his ideas. Finding different ways to present reports is a constant challenge to the student's originality.

### Enrichment Activities and Ideas:

1. Write dramatizations and stories of historical events.
2. Read widely to select material suitable for plays, tableaus, monologues, puppet shows, and do research necessary for staging the production.
3. Participate in all phases of theater production (directing, stage lighting, stagecraft, acting).
4. Plan a play for a particular age group and present it.
5. Create and stage a comic opera.
6. Direct and participate in creative dramatics.
7. Write scripts for radio programs; produce and participate in radio and television programs.
8. Portray a character role in a monologue.
9. Tell a story through a sequence of pictures, pantomime, dance, tableaus, dramatizations, choral speech.
10. In presenting materials read, use handcrafts such as puppetry, dioramas, stage settings, costumed dolls, shadow screen, or feltboard cut-outs.
11. Select and prepare a story for sharing orally with another grade group or with the class.
12. Read aloud various types of poetry, observing rules of poetic expression.
13. Plan an open house where original and unique book reports may be shared. Costumed book parades, quiz shows, puppet shows, and character sketches are examples of a few such programs.
14. Make brief reports to the class based on more difficult reading material than that used by other students.
15. Give commentaries for silent movies, filmstrips, or slide showings.
16. Discuss a Children's Theater presentation; tell how the plot developed and analyze character development.
17. Present a synopsis of a magazine or newspaper article to the class in such a way that it is fully comprehended.

18. Explain with clarity a technical subject, such as a factory operation or some astronomical phenomenon.

19. Plan and give explicit directions for playing a game, for making an object, for organizing activities, or for carrying out science experiments.

20. Participate in and lead discussions on such topics as TV program evaluations, book criticisms, group behavior, field trips, current events.

21. Participate in debates or panel discussions on challenging subjects.

22. Summarize points made in class discussions.

22. Conduct committees and class meetings, using parliamentary procedure when suitable.

24. Introduce guest speaker at class program or school assembly.

25. Plan an interview with an adult or pupils from an upper grade with specific questions in mind; organize the information received for later presentation to the class.

26. Make appeals before another class in behalf of school or community drives.

27. Direct choral speaking; assume solo roles.

28. Make tape recordings of your oral presentations to help in self-evaluation and improvement.

29. Make oral or written reports of attendance at concerts or plays, visits to art museums.

30. Write book reviews and character sketches.

31. Write news stories, editorials, special columns, and advertisements for school newspaper, class newspaper, or large wall-type newspaper.

32. Assemble and edit material for school or class newspapers, scrapbooks, or social studies unit.

33. Write questionnaires for interviews.

34. Write letters requesting materials for class use on unit or topics being studied.

35. Correspond with hospitalized veterans, particularly at holiday seasons.

36. Write letters to foreign correspondents.

37. Prepare scrapbooks of information and materials to exchange with children from other parts of the country and from other countries.

38. Design unusual invitations to class parties or programs.

39. Write letters to imaginary friends about fictitious travels.

40. Imagine yourself in another period or place and write letters descriptive of the setting.

41. Write and illustrate stories. Bind into booklets. Give simple booklets to the primary grades.

42. Using local events, pictures, or music as themes, prepare original stories.

43. Weave original stories around personal friends or favorite storybook characters.

44. Write unfinished stories to be completed by others.

45. Create characters for a continued story and add episodes from time to time.

46. Place written descriptions of unusual events, animals, and people in a loose-leaf notebook.

47. Look at some object (tree, landscape, etc.) until you see something not seen before. Then put your impression on paper.

48. Take 15 or 20 minutes to write whatever you wish, or to write about something (real or imaginary) that happened yesterday or that you saw on the way to school.

49. Create stories to tell to others.

50. Make up and tell "tall tales."

51. Write plays, poetry, descriptions, biographies, and autobiographies.

52. Try writing a variety of story types and verse forms such as the fable, myth, parable, ode, ballad, limerick, riddle, or couplet.

53. Keep a diary about your memorable experiences.

54. Make a magazine for the classroom by compiling voluntary contributions.

55. Keep a collection of favorite poems.

56. Develop collections of colloquialisms or "regional" expressions.

57. Collect folklore such as rope-jumping rhymes, counting-out rhymes, legends, folk songs.

58. Make anthologies of stories suitable for different grade levels.

59. Organize a file box for new words, arranging them under headings such as "Descriptive Words" or "Words With More Than One Meaning."

60. Compile in a notebook excerpts from reading which are unusually expressive, as examples of similes, metaphors, alliterations, and onomatopoeia.

61. Make collections of myths and legends.

62. Keep a record of interesting mottoes and proverbs.

63. Make collections of old original manuscripts, old page proofs, first editions of books, book jackets, taped interviews with authors or others in the community, autographs of authors.

64. Arrange displays for book fairs, for parents, and for other classes in the school.

65. Use different materials than do other class members, such as supplemental books on higher grade level, Landmark Books, Merrill Company Literature Series, encyclopedias, newspapers, current news magazines such as *Time* and *Newsweek*, book sections of Sunday newspapers, editorials, sets of supplemental science books, and such magazines as *Reader's Digest*, *National Geographic*, and *Popular Mechanics*.

66. Study the history of books and libraries through the ages and learn how information has been recorded and transmitted through various civilizations. Make a time line to show the history of written communication.

67. Study the history of languages.

68. Study relationships among languages.

69. Read and discuss fine pieces of literature appropriate to interests and maturity level of student.

70. Study the differences in style, vocabulary, etc., of different literary periods or different writers.

71. Develop skill in taking notes from material read.

72. Summarize in outline form the material read.

73. Keep charts of rate of reading and work for improvement through pacing reading of selected material.

74. Document research using bibliographies, footnotes, and quotations.

75. Compile bibliographies for special topics or events, or about subjects of interest.

76. Report on the works and style of a favorite author.

77. Keep an individual account of materials read with notations.

78. Classify picture and reading charts in order to bind them into large books.

79. Catalog your own books, or the books in the classroom library.

80. Plan a personal library.

81. Learn to use as research tools the library card catalogs, graphs, charts, tables, maps, the *Reader's Guide*, atlases, encyclopedias, and the *World Almanac*.

82. Evaluate reading materials, books for library, reference materials for unit study, free and inexpensive materials obtained for class work.

83. Read and condense study material for use with less advanced children in social studies and science.

84. Evaluate children's magazines. Set up evaluative criteria and make a recommended list for the library.

85. Make constructive evaluations of TV or school programs which the group has enjoyed.

86. Listen for a week to broadcasts by a news reporter and a news commentator to note differences.

87. Listen to commercials advertising different brands of some product, noting the emotionally-tinged general terms, any sweeping statements unsupported by evidence, and conflicting claims of competitors.

88. Analyze two talks on the same subject; try to determine why one was more interesting than the other.

89. Make a comparison between getting information by listening or reading. Point out the advantages and disadvantages of each for various purposes. Compare the devices used in the two media to show organization or transition of ideas.

90. Report to the class on a talk which showed bias on the part of the speaker; give evidence of this bias.

91. Predict what will happen in the next week's installment of a weekly magazine.

92. Make a study of the speeches and written work of a particular public figure; determine his motives and find hidden motives, if any; list any clues which indicate the author's real beliefs.

93. View a television program; check facts presented in written material with those on program.

94. Analyze the point of view of an author in a particular book; read about the author to explain it.

95. Recognize words or biased terms which indicate prejudice.

96. Analyze words with similar meanings to differentiate shades of meaning.

97. Study the origin and derivation of words, names, places, persons, flowers, etc.

98. Take brief notes during a lecture and transcribe into some usable form.

99. Compile data collected during experiments and from reading.

100. Serve as an observer during a class discussion in order to summarize it or to list points made by class members for or against a proposed plan of action.

101. Listen to an adult lecture on some topic of interest, taking notes for building into an outline which distinguishes between major and minor points.

102. Describe a character in a story; tell ways in which the author developed the character and influenced the sentiments of the reader.

103. Attempt to understand the behavior of characters in a book by analyzing possible causes.

104. Discuss choices made by characters and think through possible alternatives.

105. Compose original songs from materials read.

106. Express in writing your feelings about music, paintings, and other art creations.

107. Analyze pictures having fine expressions of human emotions, particularly joy and happiness.

108. Design book jackets for favorite books.

109. Translate into art, verse, story, or dance, the feelings aroused by listening to music, sounds in nature, or industrial sounds.

110. While a selection from an opera is played, write down what the music suggests.

111. Set up a Book Swap Shop for either loans or trades.

112. Participate in dramatic clubs, poetry clubs, literary clubs, story telling clubs, and book fairs.

113. Create and play language games which involve recently acquired words with unusual descriptive power or multiple meaning.

114. Construct crossword puzzle games which utilize vocabulary.

115. Keep records for class activities — committee membership, list of jobs to be done, materials to be used.

116. Listen to excellent recordings of poetry and prose.

117. Create games using new words, or invent games using the dictionary.

### Helpful References:

Barbe, Walter B. *Educator's Guide to Personalized Reading Instruction.* Englewood Cliffs, N. J.: Prentice-Hall, 1961. 241pp. $4.95. Adapting reading instruction to ability.

*Best Books for Children.* (rev. ed.) New York: R. R. Bowker Co., 1961. 208pp. $3.00. Annotated; revised annually.

Eakin, Mary K. *Good Books for Children.* Chicago: University of Chicago Press, 1959. 273pp. $5.95. Annotated.

Heller, Frieda. *I Can Read It Myself!* Columbus, Ohio: Ohio State University, College of Education, 1960. 31pp. $1.00. Annotated list for primary grades.

Larrick, Nancy. *A Teacher's Guide to Children's Literature.* Columbus, Ohio: Charles E. Merrill, 1960. 316pp. $4.95. Includes book lists for various grade levels; gives suggestions for interesting children in reading, and for evaluating new books.

Munkres, Alberta. *Helping Children in Oral Communication.* Practical Suggestions for Teaching No. 19. New York: Teachers College, Columbia University, 1959. 102pp. $1.50.

Robinson, Helen. *Promoting Maximal Reading Growth Among Able Learners.* Chicago: University of Chicago Press, 1954. 191pp. $3.50.

Russell, David H., and Etta E. Karp. *Reading Aids Through the Grades.* (rev. ed.) New York: Teachers College, Columbia University, 1959. 120pp. $1.10. Useful in an enrichment program in language arts, social studies, and other areas.

Wagner, Guy, and Max Hosier. *Reading Games.* Darien, Conn.: Educational Publishing Co., 1960. 128pp. $1.95. For small groups or one child and a helper; indexed by skills.

## Elementary — SOCIAL STUDIES

In the social studies the gifted student can be introduced to more mature concepts than can many others in his class. For this reason he can very early be given reading material which deals with content more difficult than is usually encountered in his grade. The able student should be encouraged to read widely in newspapers and magazines as well as in books and to evaluate critically what is read. He should be encouraged to listen to newscasts and to interpret and discuss what he hears.

Real research can be introduced in the primary grades. Beginning by reading one author and telling what is read, the student can quickly proceed to reading from several sources and comparing, analyzing, and evaluating the material. He can learn to write with ease reports containing factual information and to locate and document material.

Some students should learn very early to use maps, globes, and graphic material in locating information. They can also learn to present information in these forms.

The gifted student can be of service to the school and community by taking leadership roles in school or community projects and drives. He can help in the classroom by locating materials for other students, keeping summaries and records of committee and class work, and in every way possible experience the satisfaction of using his talents to achieve worthwhile goals.

**Enrichment Activities and Ideas:**

1. Select one famous Indian Chief, tribe, or topic and do intensive study on the subject. Produce an imaginary movie based on this information.
2. Develop a dramatization or an imaginary TV program to present to another class about neighborhood workers. Work on scenery and properties. Write the commentary.
3. Produce an imaginary movie about important inventions in the clothing industry.
4. Plan dramatizations to highlight the contributions to better communication of inventors such as Bell, Morse, Field, Marconi, Edison, Franklin.
5. Produce a series of "You Are There" programs, such as the series tracing the development of the English form of government beginning with the Magna Carta, Bill of Rights, and Petition of Rights. Tape programs with sound effects.
6. Find and tell stories about schools in other lands and times.
7. Pretend to be a neighborhood worker and tell about personal responsibilities on the job.
8. Visit various places of interest and report the most interesting findings to class.
9. Make after-school or week-end excursions which are not possible for the class as a whole. Prepare reports on your observations.
10. Report on visits to interesting places in the county, state, nation. Show pictures made about them.
11. Pretend to be a "logger" or some other colorful worker; plan a monologue to share your "experiences."
12. Give a flannel board talk about clothing. Add bits of fur, plants, cloth, to depict animal skins, grass skirts, togas, sarongs, and other garments.
13. Report to the class on primitive methods of land travel and transportation.
14. Report on new instruments that aid safety in air transportation.

15. Show pictures of types of new but familiar airplanes, rockets, space craft, etc., by using an opaque projector. Answer questions about the pictures.

16. Interview an aviator, museum worker, or some other interesting person. Write up the interview and post it on the bulletin board.

17. Organize and present information and comments on world, national, and local problems and events.

18. Serve as a chairman, reporter, or evaluator for a group.

19. Give illustrated travel talks.

20. Conduct an election.

21. Write biographical "thumb-nail sketches" of local heroes, school patrol boys, play leaders, and winners of citizenship awards.

22. Compose biographical riddles about American heroes and heroines, real and fictional, such as Johnny Appleseed, Paul Bunyan, Daniel Boone, Betsy Ross.

23. Find pictures of famous Ohioans (or people from your state). Write short legends for each illustration and combine all into a "Hall of Fame."

24. Read about Eskimo life as seen by Arctic explorers. Write letters to the class as though an explorer were writing to his friends "back home" about his experiences with the natives.

25. Cut pictures of farm machinery from advertisements. Write descriptive legends for them and post for the class to examine.

26. Select one or two "imported" foods such as coffee, pineapples, bannanas, and learn enough about them to give a good report.

27. Select one basic food and list all the workers involved in producing, processing, and distributing it.

28. Clip pictures of new apparel manufactured for firemen, stratosphere pilots, arctic explorers, deep-sea divers. Write short articles to accompany the pictures. Post on the bulletin board.

29. Plan an imaginary air trip; map your itinerary, with stops in important cities.

30. Collect information to use in making a Bridge Book for the library table. Include statistics on the oldest, highest, longest bridges in America.

31. Write an explanatory legend about each month for the bulletin board. Later compile these into a booklet for the library table.

32. Write for illustrative material about possible places for the family to visit on vacation.

33. Write imaginary stories with a setting in any period of history. For example, write stories showing the hardships that resulted from the development of England from an agricultural country to a highly industrial country, and the terrible conditions that accompanied the movement from farm to factory.

34. Write summaries, paragraphs, or explanations of a new idea, as might be found in a news report. Do this almost daily until the essay comes naturally.

35. Carry on independent study and report on additional material related to the topic being studied by the whole class.

36. Use special skills to make contributions to current group interests; e.g., reading hard articles, taking notes during an interview, writing summary materials, making computations required in a project, developing a questionnaire, corresponding with business establishments and institutions.

37. Read stories in old-time books like the McGuffey Reader series.

38. Read to explain how ships can sail against the wind.

39. Read and share stories of the adventures of early Americans who carried messages between settlements.

40. Do reference reading on American Flags. Discover their origins, purposes, designs, colors, meanings.

41. Become an authority on the life of a famous person through reading biographies.

42. Investigate the contributions which present-day Indians are making to the arts, sciences, sports, industries, exploration.

43. Find out about life in our new states, Alaska and Hawaii. Write to travel and government agencies for illustrative materials. Interpret the materials to the class.

44. Contrast and compare family life in country and city homes today and a hundred years ago.

45. Talk over with parents city problems such as zoning and building inspection and how these problems have affected one's own family.

46. Interpret the influence which weather has upon the farmer and his work.

47. Conduct a neighborhood survey to note different styles of architecture represented, oldest and newest building, largest buildings, and the like.

48. Explore the most recent sources of new fabrics; e.g., fibers of deep sea plants, aluminum, glass, synthetics.

49. Compile items on charts to show relative advantages and disadvantages of land, air, and water travel and transportation.

50. Study boats around the world. On a large world globe or on paper disks to represent the world, paste small models of boats in their native waters.

51. Identify great boat builders and special types of boats with proper nations or peoples.

52. Determine why toll is paid on some bridges, not on others.

53. Find out about products carried on familiar lakes and rivers. Identify some as being in daily use in homes and school, others of national importance. (For example, steel for Golden Gate Bridge went down the Ohio River.)

54. Study the history of our alphabet.

55. Trace some contemporary American holiday customs to the nations of their origin.

56. Collect data on a particular problem from many sources and critically evaluate it.

57. Become an authority on a topic of personal interest.

58. There are many ways in which other peoples of the world learn about us, such as through movies, radio programs, magazines and books. Select a few examples that give them a true picture and some that give them a false impression of our daily life.

59. Plan a "Hall of Fame" for some other country for display on the school bulletin board.

60. Collect and read published material on a current problem, such as peacetime uses of atomic energy, or nuclear testing; analyze and predict the outcome; check the prediction against the actual solution.

61. Read several books about one man or historical event; note any discrepancies in facts; check accuracy.

62. Read about a particular area; check facts with present status of the area, noting changes caused by recent political and social events.

63. Read biographies to learn how famous people have solved problems and how this has contributed to their success.

64. Interpret the way a character in a popular book solved a personal or social problem; compare interpretation with others who have read the book; add other solutions and explore the relative merits of each.

65. Prepare school news items for the local papers. Include news of any field trips or unusual class activities as well as a resumé of the interesting information discovered during a social studies unit.

66. Organize and manage class parties.

67. Develop rules for school safety.

68. Create slogans to improve behavior in the school lunchroom, corridors, and on the playground.

69. Work out a check list for qualities of citizenship. Evaluate one's self once a month.

70. Prepare news bulletins about the school's achievements in sports events, city campaigns, and the like.

71. Operate Lost and Found Center at school.

72. Operate Savings Stamp Campaign.

73. Take charge of fund-raising activities; e.g., paper drives.

74. Get permission to contact neighborhood establishments to ask their cooperation in a school project; also, help to arrange for class or school cooperation in a community campaign.

75. Devise ways to show appreciation for the services of neighborhood workers.

76. Organize a cheer-up committee in the classroom. Be responsible for seeing that phone or pupil contacts are made with children who are ill. Plan unusual get-well cards or simple gifts.

77. Make a study of the statues in the parks and city.

78. Find out how some of the city streets were named.

79. Prepare an illustrated report on neighborhood recreational facilities.

80. Introduce community people from different countries of the world to show to the class articles from these countries.

81. Consult the librarian for sources of local folklore; share some of findings.

82. Make a study of the history of the school community.

83. Write the "present history" of the school, covering physical plant, classes, teachers, items of special interest.

84. Talk with older brothers, sisters, or friends who attend other schools. Report on their remarks about the most interesting aspects of junior or senior high school or college.

85. Find out from parents how the schools of today compare to the schools which they attended.

86. Serve as curator of the classroom Indian museums helping pupils identify, classify, and label Indian souvenirs and relics.

87. Begin a scrapbook on Indian legends, dances, poems, stories, and songs.

88. Make a scrapbook of period costumes; give illustrated report about interesting costumes seen in a moving picture or on television.

89. Prepare a scrapbook of modes of land travel in other countries and in other times. Write captions for each illustration. Make a table of contents and a glossary for the scrapbook.

90. Begin a scrapbook of postcards about interesting landmarks in American cities and states.

91. Classify favorite stories, games, songs, dances, and poems according to the nations where they originated. Share some with classmates.

92. Exhibit and label travel souvenirs. Develop some code system to use for showing on a map the places where they were obtained.

93. Begin a collection from each of the fifty states. Use a United States map to star states represented in the collection. Invite friends to help with the collection by loaning possessions.

94. Collect and examine building materials. Trace them to their sources and find out how they are processed for use.

95. Clip advertisements of ultra-modern home conveniences. File under planned scheme of topics; e.g., cleaning, heating, decorating, cooking, furnishings.

96. Collect and compare pictures of land vehicles using gasoline, diesel, and other types of engines.

97. Make a picture gallery of famous aircraft inventors, famous pilots, and their planes. Give a "gallery talk" about them.

98. Prepare an exhibit box of one's own. Label the box "What's This?" Into the box put interesting nature, art, and historical materials for the class to study and enjoy. Change the exhibits occasionally.

99. Display and label articles and products of each state visited during summer vacation.

100. Make collections of stamps, rare coins, contemporary money from various countries, cultural artifacts from foreign countries, and handicrafts.

101. Post Indian messages for the class to decipher by referring to a chart of symbols and their meanings.

102. Find pictures of famous canals, like the Panama, Suez, and Erie, in the news and in stories. Locate them on maps.

103. Produce neighborhood maps for use by new pupils. Show locations of school and new pupils' homes.

104. Draw a map of the neighborhood showing the location of important establishments. Use arrows to indicate safe routes to these establishments. Append information about proper behavior in each place.

105. Make a map of play areas for all to use.

106. Locate on a map the places where new pupils have come from. Ask them about their former homes; e.g., topography, chief products, urban or rural characteristics of the region.

107. Mark a map to show how some major food on the school luncheon menu traveled from its sources to the serving table.

108. Mark a map of North America to show main Indian cultures. Include Indian life in Canada, Alaska, and Mexico.

109. Assume responsibility for keeping a "newsmap" for the class.

110. Examine a picture symbol map to find out which are the most important farm products in the Middle West.

111. Make an elevation map to scale.

112. Examine different types of maps and note their uses.

113. Make a time line for the number of years you have lived.

114. Make one of the following suggested models: *Communication*—United States mail box, telephone system, telegraph set, or how to make a carbon microphone; *Time*—model time gauge, or model clock; *Power*—simple water wheel, or model cylinder and piston; *Earth's Surface and Astronomy*—model globe, model volcano, model star box, model earthquake, or large scale model relief map.

115. Construct model rooms showing furniture arrangement, color schemes.

116. Construct models of main types of local bridges and interesting kinds used in other localities; include suspension, pier, draw, cantilever, covered.

117. Make models for a "sea-o-rama" of famous sailors and their vessels; e.g., Noah, Sinbad, Marco Polo, Columbus, John Paul Jones, Lord Nelson, Admiral Perry, Admiral Dewey, Admiral Byrd.

118. Model farm animals. Prepare a report covering their contributions to man's food and clothing.

119. Use commercial toy building logs to construct a Lincoln cabin. Extend the project to include a settlement like those common during Lincoln's life.

120. Model in clay or papier maché the animals which man has used for land travel and transportation. Discuss reasons for choices; e.g., availability of animal, ease of training, physical characteristics, habits.

121. Make models; e.g., a flatboat to scale, the Ohio River system of locks and dams, a complete Virginia plantation, a medieval castle or medieval weapons. These models should be accurate in every detail.

122. Make a doll, and design and sew authentic native costumes for it.

123. Make a booklet of farm machinery for the class to enjoy.

124. Prepare booklets with holiday themes to present to parents as gifts.

125. Devise a sight-seer's booklet to use when visiting the zoo.

126. Compose quiz-lists for the class bulletin board about museum exhibits. Place answers in another spot for checking.

127. Illustrate original riddles, stories, and poems about "neighborhood workers" to make a booklet for the library table.

128. Draw cartoons illustrating current events.

129. Design "Good Citizenship Insignia" to be worn on special days.

130. Use various art media to produce objects representative of some foreign nation. Display with explanatory labels.

131. Supervise the making of a frieze depicting some representative phase of life in a foreign country.

132. Develop pictorial charts about community facilities and their dependence upon local and outside agencies.

133. Draw pictures of inventions which have "modernized" farm life. Discuss the changes in occupation and recreation which the inventions have caused in farm life.

134. Watch the construction of a house; make sketches showing stages of progress.

135. Illustrate types of contemporary homes; e.g., ranch, split-level.

136. Sketch or find pictures of local bridges, viaducts, and tunnels. Exlain their service to the community.

137. Use colored chalk on a wall mural to show the types of cargo and craft on the Ohio River (or Mississippi, or Hudson) today—and a century ago.

138. Begin a notebook of pencil sketches of ships with brief explanatory legends for each. Include square-rigger, tanker, liner.

139. Picture recreational activities afforded by lakes, streams, oceans.

140. Design different methods of communication which might be used in the future.

141. Make travel posters and folders for any area under study.

142. Plan and make a historical mural.

143. Make dioramas of orchard, field, vineyard, barnyard, and other farm scenes.

144. Arrange a bulletin board display of news articles about a particular topic.

145. Hold "man on the street' interviews with a "common man" during one of the critical periods of history, such as the Civil War or the stock market crash of 1929. Tape record interviews.

**Helpful References:**

National Council for the Social Studies. *Childrens' Books to Enrich the Social Studies for the Elementary Grades.* Washington, D.C.: NEA, National Council for Social Studies, 1961. 207pp. $2.50. Annotated bibliography of selected titles with index and grade level designation.

*Other Lands, Other Peoples.* Washington, D.C.: NEA, 1201 Sixteenth St., N.W., 1960. 192pp. $1.00. Loose-leaf reference book giving concise information about 86 countries.

*Teaching About Other Countries and People in the Elementary School.* Washington, D.C.: NEA, 1201 Sixteenth St., N.W., 1960. 37pp. 60¢. Multilithed.

Tooze, Ruth, and Beatrice Krone. *Literature and Music As Resources for Social Studies.* Englewood Cliffs, N.J.: Prentice-Hall, 1955. 457pp. $6.25. Activities and suggestions.

## Elementary — SCIENCE

Enrichment activities designed to lead to further learning in science should be based on the problem-solving approach. The student's experiences with science are thus research-oriented from the beginning. He learns to question, doubt, and find out. This approach challenges the child's ability to think critically, promotes curiosity, and encourages originality. It permits him to pursue topics of individual interest.

More advanced experiments and projects may be carried on by interested children, but they will require time, materials and guidance. A wide variety of books, reference materials, textbooks of different levels, projection equipment, and laboratory supplies must be available. The teacher may stimulate children by arranging a rich classroom environment including motion pictures and other projected materials, visits with resource persons, field trips, displays, exhibits.

A small museum or laboratory may be set up in a corner of the classroom where students can keep science materials and carry on work. A file of simple experiments may be kept handy for pupil reference. These are but a few of the many possibilities for stimulating independent work.

After the child has completed a special project or topic of study he should be encouraged to share his learning by means of demonstrations, displays, or reports, oral or written.

**Enrichment Activities and Ideas:**

1. Consult the librarian or science teacher for help in locating information on topics of special interest.
2. Review new sample science texts.
3. Read biographies of famous scientists; repeat some of their experiments.
4. Study the lives and contributions of early scientists, such as Galileo, Pasteur, Lister, Koch, etc.
5. Study the production of sound from a phonograph.
6. Study the school public address system.
7. Make a study of the telephone; explain its operation through diagrams and discarded parts of a telephone.
8. Find out how hi-fi records are made and how they reproduce sound. Develop diagrams and experiments to show this.
9. Find out how radio and television transmit sound.
10. Find the relationship between the tension in a string and the vibration frequency of the musical note produced when the string is plucked.
11. Explain how the solar system is either directly or indirectly the source of all energy on earth.
12. Select one task which electricity does for man (refrigeration, for example) and study about it.
13. Find out how early and later man used different kinds of energy to do work.
14. Study ways of purifying water.
15. Read in science books to determine the amount of water contained in common foods and in the human body. Discuss the relation between water and health.
16. Learn how oceans are formed. Explain why ocean water is salty.
17. Study waves and the tides.
18. Read and study about the composition of air.
19. Study and report on the kinds of lightning and their causes.
20. Consider conservation plans for local resources.
21. Study the influence of seasons on plant and animal life.
22. Study animal tracks.
23. Make a study of ways in which animals defend themselves.
24. Learn the functions of animals' tails. Include the cow, opossum, lizard, beaver, and kangaroo.
25. Read about man's uses of animals to serve his needs, such as: to pull vehicles, run machines (crush sugar cane), etc.

26. Select one water bird, mammal, fish, mollusk, or water insect and collect pertinent facts about it.

27. Select one outstanding specie in several bird families and locate information about it—e.g., golden eagle in eagle family.

28. Get acquainted with John James Audubon by reading about him in encyclopedia and other books. Visit the library to see the famous folio of Audubon paintings.

29. Find out how people used to interpret "migration" and the theories which modern scientists have about it.

30. Read to find out which birds are the most famous travelers. Mark a map to show their general routes and distance covered. Select a good traveler (the bobolink, for example) and write a monthly diary about its general location and typical activities.

31. Read to determine the relationship between micro-organisms and disease.

32. Study the causes of contamination of food. Study laws and agencies functioning to assure a safe supply of food, water, and air.

33. Make a study of pests dangerous to man; explore ways to exterminate them.

34. Find out which plants reproduce by means of root development underground—creeping weeds, strawberry plants, etc.

35. Study some known diminishing specie, like the elm tree, to learn what has caused the decline in numbers.

36. Read or inquire about local enemies of trees, such as termites, worms, rot.

37. Learn about interesting trees in other communities—gnarled pines along seacoasts, dwarf oriental trees, cypress trees in swamps.

38. Secure information explaining how a forest becomes "petrified."

39. Select some important seed such as the cotton, flax, or corn seed, and read about it. List its varied uses.

40. Find out what mountains are made of and how they are formed.

41. Select an important resource like oil and study to find out all the products made from it. Collect all the samples possible, or advertisements about them.

42. Select one or two important synthetic materials and try to find out how they are made.

43. Make a study of minerals and their importance to our civilization.

44. Find out about the production and use of commercial and industrial magnets.

45. Read about early myths, legends and superstitions; compare them with present-day science facts.

46. Read about astrology and superstitions growing out of it.

47. Read legends about names of constellations.

48. Choose a particular planet for special study and observation.

49. Find out how astronomers determine distance to the moon, sun, and the nearer stars.

50. Attempt a scientific interpretation of some natural or physical phenomenon.

51. Study weather reports from stations throughout the country. Using a blank map, indicate areas of high and low pressure, cold and warm fronts, and learn to make actual forecasts.

52. Differentiate between kinds of winds (breeze, gale, hurricane, tornado, calm, storm, monsoan) and note their effect on life.

53. Learn the names, characteristics, and implications of different kinds of clouds. Predict weather from cloud formations seen.

54. Locate polar, temperate, and torrid regions of the world globe. Learn the names of countries partly or wholly within the zones.

55. Describe and compare seasonal change in polar, temperate, and torrid zones.

56. Compare water life in tropic, arctic, and temperate regions.

57. Compare life in our climate with life in a radically different climate.

58. Examine a relief map or a globe to note the variation in the earth's surface.

59. At a given hour, compute the time in the various time zones in the United States. Account for these variations from region to region.

60. Locate famous forests on a United States map.

61. Select some important resource, like coal or iron ore; outline its progress step-by-step from "in the earth" to man's ultimate use of it.

62. Trace man's attempts from early times to "light his home."

63. Classify simple machines and their use in modern living.

64. Find out how an electric meter works and learn to read one.

65. Survey and analyze the conservation needs of the community.

66. Learn the group names for dogs, and the species in each. Find out the characteristics and services of each group; e.g., sporting group is used for hunting and retrieving game.

67. Learn the names of animals which live in and "around" shells; group the animals into families and study them.

68. Group prehistoric animals into large families.

69. Tell how to distinguish birds from other forms of animal life. Read in order to explain what makes it possible for a bird to fly.

70. Classify birds by several methods: types of beaks, feet, wings, song, marsh, oceanic, game, pet birds, or birds of prey.

71. Determine how to plot the sun's position and then plot it for one month.

72. Calculate how long it would take supersonic planes and missiles of today to reach various places in our universe, using the current speed record.

73. Take star photographs; explain trails.

74. Identify other bodies in the solar system—asteroids, meteors, comets.

75. Plan experiments to test statements found in science books.

76. Conduct an experiment on the learning process by constructing a maze and using it with small animals.

77. Observe insects and take notes on their actions.

78. Observe an ant colony in soil or glass container. Read sections in science books to interpret the observation. Make a report to the class.

79. Apply the scientific method to find answers to such questions as: "From what part of the seeds do shoots come? . . . do roots come? What foods will this caterpiller eat?" Plan some way to share with classmates.

80. Grow new plants in as many different ways as possible. Keep records about their germination and growth.

81. Discover how plants absorb water; how heat and cold, light and darkness, affect plants.

82. Experiment to show why roots grow downward.

83. Soak large seeds to soften them; then cut them open and study with a magnifying glass. Learn scientific terminology for the outside and internal structure of the seed.

84. Grow molds and mildews and examine them with a magnifying glass. Account for their presence.

85. Prepare agar cultures in Petri dishes. Leave some of them open to the air while others are tightly capped and sealed. After several days, study with a microscope or bioscope the microorganisms which develop. Share experiment with the class.

86. Demonstrate rain by heating water, making the steam come in contact with ice and condense; observe the droplets fall from the glass tube.

87. Make water solutions of different substances. Filter substances from water. Examine a sketch showing how drinking water is purified.

88. Dissolve salt in water. Watch for salt crystals as water evaporates.

89. Experiment to show that water "seeks its own level." Use a clear glass teakettle.

90. Experiment with the pressure of water. Punch holes in a container at different levels and note from which water squirts the farthest.

91. Experiment with the density of water. Using an egg and glasses of fresh and salt water, see which will float the egg. Explain why.

92. Use the scientific method to determine what conditions will speed up or slow down the evaporation of water. Relate these findings to conditions as found in nature.

93. Discuss and prepare experiments to show how matter can be changed.

94. Prove that matter occupies space and has weight.

95. Experiment to show the movement of air. Attach threads to a yardstick and hold in mid-air.

96. Observe air "illuminated" by a shaft of sunlight. Note and try to identify the particles.

97. Plan experiments to show harnessing of power; e.g., experiment with a solar battery, magnifying glass, model windmill, water-wheels, and steam engine.

98. Plan an experiment to ascertain the speed of sound. Determine the relationship of temperature to speed of sound.

99. Identify rocks and minerals through scratch test, cleavage, and Geiger counter.

100. Build special equipment to use in explaining or demonstrating some aspect of an outside reading project.

101. Make a cutaway model of the human heart.

102. Make scale models or drawing of dinosaurs and compare with size of man.

103. Make shoe-box peepshows depicting prehistoric animals. On each box put a short descriptive article about the animal.

104. Make a diorama of the luminous fishes at the bottom of the ocean.

105. Be responsible for setting up and caring for an aquarium.

106. Make a terrarium representative of a desert, forest, or swamp scene.

107. Make a soilless garden using a sponge, gravel, moss basket, and sawdust.

108. Assemble and set up equipment for distilling water; show relationship to weather phenomena.

109. Build, operate, and maintain a weather station. Make simple instruments, keep weather records, read weather maps, and use a can to catch and measure rainfall.

110. Create a planetarium for the classroom. Make small balls of clay, papier maché, etc. and place them in the proper orbital positions of the planets they represent.

111. Make scale models of the solar system; adapt it to classroom display.

112. Construct an umbrella planetarium.

113. Make a mobile showing various sources of light: sun, stars, flame, electric filament, radium paint, a firefly.

114. Make a mobile of the solar system.

115. Make a "star box" by cutting a slit at the top of a large black box for constellation slides. A flashlight inside the box will illuminate the pattern.

116. Make a star finder. Plot the positions of several stars for one month.

117. Make an individual star map that could be used as a guide for stargazing during various seasons.

118. Make a sundial.

119. Make a sun camera and find the size of the sun.

120. Make reproductions to show stages in the development of an invention.

121. Make a working model of some piece of simple machinery of interest to the group and demonstrate its principle to the group.

122. Make scale models of an Egyptian water-lifter, a water-and-sand clock, and a water wheel.

123. Make a water turbine, by having water falling from a faucet turn a simply constructed wheel with paddles. Explain the principle involved.

124. Make a steam turbine. Attach the lid of a tin can to the top of a closed coffee can, the top of which has a few holes, and

partly fill with water; place the can over heat and the steam escaping through the holes of the can will turn the wheel illustrating the steam turbine. Explain the principle involved.

125. Build a model home and wire it. (Caution: This should be checked by the teacher to avoid the hazard of electric shock.)

126. Work out and set up the electrical circuits for a science quiz board.

127. Wire the lights for a stage.

128. Assemble a small electric motor with the help of a resource person.

129. Make and explain an electromagnet.

130. Make a simple telegraph set and learn the Morse code.

131. Construct a radio.

132. Make a xylophone.

133. Show through pictures and diagrams how the body uses food.

134. Interview classmates to learn species of pets which they have. Arrange the information on a chart.

135. Make an illustrated chart to post in the classroom, showing ways to protect and promote bird life.

136. Find out the kinds and names of animals in the lower order of animals, such as mollusks and protozoa. Devise an illustrated chart for display.

137. Make a picture or word chart showing seeds used for food by people, birds, and other animals.

138. On a chart divided into sections labeled "flower," "fruit," "seed," "stem," "leaves," "roots," write the names of plants and their contributions in medicine and industry.

139. Make a calendar record of local seasonal planting—*spring*: corn, most vegetables; *winter*: wheat; *fall*: bulbs.

140. Make a map of the country showing where the various types of soil occur.

141. Make a time chart showing five billion years of the earth's age on a scale and indicate what took place at various intervals.

142. Make a chart showing modern man-made materials and the former "natural" materials which they have largely replaced.

143. Keep a cumulative weather record.

144. Keep records of changes in length of daylight, temperature, time of sunrise and sunset.

145. Install a weather vane in a strategic spot and make records of the "prevailing" local winds.

146. Prepare a two-column chart showing "good" and "bad" effects of wind. Collect clippings of wind damage.

147. Find out where and when to look for the five planets visible to the unaided eye. Make a chart showing this information.

148. Study the distances to various stars. Make charts, graphs, and scale diagrams to show comparative distances.

149. Plan and operate a school museum.

150. Start a collection of some science material (rocks, leaves, insects, shells, fossils, etc.) with necessary identifying, labeling, and classifying.

151. Collect local weather "sayings" and try to find out how reliable they are. Read legends about weather beliefs of the Indians.

152. Clip newspaper weather maps and records; interpret and file them. Follow forecasts for a time, checking their accuracy.

153. Collect newspaper and magazine clippings, photographs, and advertisements showing man's uses of trees. Collect pictures of animals' uses of trees.

154. Collect and display seeds, leaves, twigs, and bits of bark from various species of native trees; e.g., various oaks, maples, pines.

155. Devise a plan for organizing collected seeds and arrange them accordingly; e.g., flower, vegetable, tree, weed, grain seeds; colors; sizes; or mode of travel.

156. Collect advertisements showing uses of seeds as cereals, seasonings, flavorings, beverages, salad oils, cooking fats, and the like.

157. Collect and analyze samples of soil.

158. Collect cocoons; identify and prepare for observation and safekeeping.

159. Set up a prehistoric museum; make models and illustrations.

160. Collect and classify fossils both as to type and as to period.

161. Collect samples of important materials found inside the earth: oil, minerals, coal. Write descriptive cards for the exhibit.

162. Collect rocks from the neighborhood and identify them with the help of a geologist or a book like the *Field Book of Common Rocks and Minerals.*

163. Make descriptive cards for a rock collection explaining their characteristics, composition, formation.

164. Make a collection of toys which demonstrate scientific principles; label and display.

165. Keep a scrapbook of news items about the peaceful uses of the atom.

166. Make collections of insects, leaves, lichens, redwood burls, old light globes, wax and cylinder recordings, fish, stuffed birds and other animals, live hamsters, pressed flowers, toads, and polliwogs.

167. Preserve leaves and post them on a chart. Group and identify by general contour or by vein structure.

168. Arrange a display of different kinds of wood and note the specialized uses of each.

169. Prepare a list of "Do's and Don'ts" to enable classmates to help prolong the life of trees found in their yards. Use cut paper for three-dimensional posters showing ways to care for trees.

170. Surround a world map with drawings of unusual birds and short articles about them. Fasten a colored ribbon from each bird to a country in which it lives.

171. Produce and exhibit bird models of clay or papier maché, showing range in size and form.

172. Suggest and post suitable menus for feeding stations for various kinds of birds.

173. Set up a large mural showing a three-dimensional cutaway of the earth's surface. Place rock samples on the table before the mural and connect with yarn to the places on the picture where the samples can be found.

174. Plan and organize a "Science Fair." Assume responsibility for publicity, exhibits, and programs.

175. Select a popular type of house pet (like a dog or cat) and collect pictures of different species. Label each picture.

176. Collect or draw scenes of animals that live in water. Paste paper silhouettes of animals on large paintings of an ocean, lake, river, pond, or swamp.

177. Draw sketches to show the plant and animal life and the rock formations found in and under the ocean.

178. Sketch a bird's body, labeling the feathers of each part with their scientific name; e.g., *nape, crown, primaries.* Use these terms in learning to identify new birds by coloring and feathers.

179. Draw the stages through which a butterfly passes. In telling about them, use proper terms: *embryo, larva, pupa, adult.*

180. Sketch the branch of a tree in September, November, March, and May, to show changes. Take notes on the changes observed.

181. Make pencil sketches to show special features of seeds which give them good "air-borne," "hitch-hiker," and other dispersal qualities.

182. Mount pictures of types of gardens: rock gardens, patio gardens, city roof gardens, formal gardens, informal gardens, water gardens, indoor gardens.

183. Draw or locate pictures of landscapes beautified with water in lakes, streams, and otherwise.

184. After reference reading, use colored chalk to draw vegetation found in hot, cold, temperate, swampy, and mountainous areas.

185. Illustrate early beliefs about the seasons.

186. Be responsible for keeping a pictorial weather calendar for the class.

187. Make a sky mural.

188. Design and draw automobiles, planes, houses, furniture, etc., which may be used in the future. Explain possible changes from those in use today.

189. Keep a notebook on personal science study.

190. Make a card file of science experiments performed at home.

191. Make a "question box," jotting down on cards or paper and filing under proper categories the questions for which answers are desired.

192. Make a book of common superstitions and unscientific attitudes and try to refute them with scientific evidence.

193. Make a notebook of outstanding current and pioneer scientists, including a brief biography and chief contributions.

194. Write a science article for the classroom bulletin board or newspaper about the uses of stars for following directions, surveying, navigating, and the like.

195. Write to the U. S. Weather Bureau for pictures of clouds or information about winds.

196. Make a large diagrammatic drawing to explain the water cycle or write a story of the water cycle, with a drop of water as the author. Let the story begin in a puddle.

197. Compile a reading list of stories in which birds are the most important characters. Indicate if the stories are factual or fictional.

198. Prepare a question-and-answer game about helpful birds and the insects which they attack.

199. Locate information about insects which live in colonies, like the ant, housefly, and paper-making wasp. Write stories about how insects live together in colonies.

200. Describe the most common parasites which annoy man.

201. List the most common parasitic animals which prey on animals and write brief paragraphs about their harmful effects. Include such parasites as fleas, lice, grubs, mites, tapeworms.

202. List some of the parasite plants, name the host on which they live, and describe the damage which they may do. Search for examples of parasite plants in the home and school area and identify them.

203. Give examples of both harmful and helpful fungi.

204. Write a paragraph explaining the services which roots give to the plants of which they are a part.

205. Write a story in which the life of a tree is portrayed from "seed" to the present.

206. Map an area near school or home. Identify the trees in the area; classify them as "deciduous" or "evergreen."

207. Identify trees in a certain area by their winter silhouettes.

208. Outline information summarizing readings about the usefulness of trees. Use large headings like "Food," "Clothing," "Shelter," "Industry," "Beauty."

209. Hold leaves up to sunlight or to an electric light to see their vein pattern. Search for dried leaves which have only their vein network remaining. Write a paragraph explaining the function of leaf veins.

210. Correspond with a forest ranger for information about his work.

211. Report on television programs concerned with science; analyze scientific principles, methods, and procedures shown.

212. Contrast the seasons in North and South America. Interview persons who have traveled or lived in "opposite" seasons from the United States.

213. Plan a dramatic representation contrasting how past generations prepared for winter and how modern families do.

214. Find and tell stories of the importance of water to man. Include stories from pioneer days.

215. Give a talk on useful products which man obtains from water.

216. Relate stories which the ancient peoples told about stars.

217. Serve as leader in a discussion about the sun as the source of most energy on earth. Summarize the discussion in a picture chart showing plants' and animals' dependence on the sun for energy.

218. Prepare a report for the class describing the three forms of matter (solid, liquid, gas) and giving some characteristics of each.

219. Explain the purpose of a basal metabolism test and tell how it is given.

220. Ask a doctor about the relation between health and bacteria.

221. Choose one family in the animal kingdom and describe many of its various members.

222. Give a talk on bird-banding—how and why it is done.

223. Compose a short skit in which a farmer, fisherman, doctor, and city resident discuss their troubles with birds.

224. Inquire about which insects are most troublesome, city-wide.

225. Interview parents about the insects which are most troublesome at home. Consult science books to find out how to control these insects. Report back to parents.

226. Describe the terrain in the school-home area.

227. Tell of the "work" which a river has done in a certain area—such as your community or your state.

288. Give a talk on how the earth's surface is constantly changing.

229. Discuss earthquakes and volcanoes and their causes.

230. Give an illustrated talk on how to assemble, identify, and mount insects, flowers, or seeds.

231. Read and tell flower myths. Paint pictures of flowers in myths and write descriptive labels.

232. Examine different kinds of tree bark with a magnifying glass. Identify trees by means of their bark. Prepare a short talk on the importance of tree bark to trees—and to man and animals.

233. Produce a script for a play in which the players will assume the roles of animals, telling how trees serve them.

234. Take trips to local geographic or geological points of interest.

235. Plan a family visit to a farm supply store to note poultry and cattle feeds derived from seeds.

236. Make a study of birds' nests and nesting habits. Take field trips with a member of the family to make observations.

237. Plan a visit to a local plant, such as a pottery, which uses raw material; try working in ceramics.

238. Visit an observatory with parents to see the stars.

239. Visit the weather bureau and observe their instruments at work.

240. Collect information about activities appropriate for week-end and after-school hours; e.g., nature hikes in parks, science hobby clubs, stargazers' club.

241. Organize and lead an astronomy club.

242. Prepare to raise and care for small animals at home; e.g., hamsters, white mice.

243. Observe and identify as many birds as possible.

244. Become a class "expert" in some area of science.

245. Write about "What would happen if—pills could be substituted for food? —everyone suddenly became deaf? —we had only three fingers on each hand? —the oceans dried up? —all the air became radioactive?" (Think of other "Science If's.")

**Helpful References:**

Blough, Glenn O., and Marjorie H. Campbell. *Making and Using Classroom Science Materials.* New York: Dryden Press, 1954. 229pp. $3.95.

Deason, Hilary J., and Ruth N. Foy. *Science Book List for Children.* Washington, D.C.: American Association for the Advancement of Science, 1961. 139pp. Paper, $1.00. Readings for primary through eighth grade.

Gardner, Martin. *Science Puzzlers.* New York: Viking Press, 1960. 128pp. $2.00. Simple and clearly illustrated experiments which take no special equipment.

Mallinson, George C., and Jacqueline V. Buck. *A Bibliography of Reference Books for Elementary Science.* Washington, D.C.: NEA, National Science Teachers Association, 1960. 40pp. 50¢.

Nelson, Leslie W., and George C. Lorbeer. *Science Activities for Elementary Children.* Dubuque, Iowa: Wm. C. Brown Co., 1955. 154pp. $3.00.

Sheckles, Mary. *Building Children's Science Concepts Through Experience.* Practical Suggestions for Teaching, No. 15. New York: Teachers College, Columbia University, 1958. 138pp. $1.50.

## Elementary — ARITHMETIC

A variety of materials and activities may be used for enriching the arithmetic program. Such materials and activities should add to insight and understanding of mathematical principles and lead to a higher level of comprehension. Enrichment activities might include the use of materials in supplementary texts, the preparation of exhibits and models, the preparation of reports on individually selected topics, or participation in arithmetic clubs and contests. Devising different methods of solving problems and finding short-cut methods or new ways of checking answers are challenging.

Students may enjoy creating and solving mathematical puzzles, games, novel problems, magic squares, and other types of recreational arithmetic. However, these should always be regarded as recreational and not as a substitute for a supplementary program for able students in arithmetic. The classroom might include a shelf with books related to arithmetic for individual reading, a corner or table with challenging games, puzzles, and various self-instructional devices.

Students should be encouraged to become increasingly less dependent on pencil and paper in the solution of problems and to use different methods of mental arithmetic. The discovery of mathematical relationship and a higher understanding of mathematical principles are leading purposes of enrichment in arithmetic.

**Enrichment Activities and Ideas:**

1. Estimate answers to addition examples in new ways.

2. Discover various ways of verifying sums and differences.

3. Employ short methods in solving multiplication examples.

4. Devise personal, accurate short-cut methods to problem-solving.

5. Tell time in new ways—by fractional parts of an hour, decade, etc.; according to ship's bells.

6. Estimate answers to all problems and compare computed answer with the estimated one.

7. Round large whole numbers to nearest tens, hundreds, thousands, and the like.

8. Solve problems mentally by breaking numbers up into tens, hundreds, thousands, and the like.

9. Use accepted short-cut methods to solve problems mentally; e.g., to multiply by 25, multiply by 100 by adding two zeros and divide by 4.

10. Estimate answers with mixed numbers by computing with the whole numbers involved and determining about how much more the real answer will be.

11. Solve problems without paper and pencil.

12. Play number games. (Example: Write any number you like, multiply by 2, add 18, and then divide by 2, now subtract the number with which you began; the answer will always be 9.)

13. Construct riddles. (An example of a fourth grade child's riddle is as follows: ¾ of Jane + ½ of us + ⅓ of Ann + ⅔ of rye = January.)

14. Answer "number quizzes" and make up some. (Example: "Take the answer to 3 times 4, double it, add 1, subtract 3, take one-half of the number. What is the answer?")

15. Bring a new number game of one's own and play it with groups of classmates.

16. Learn from the teacher how to use a new classroom number game; teach the game to small groups.

17. Study the directions for a new classroom game and learn how to play it.

18. Construct a new number game for class use. Set up standards of play; write out or explain the rules for playing; demonstrate the procedure for scoring.

19. Work number puzzles such as those in children's monthly magazines and weekly newspapers.

20. Construct helpful homemade arithmetic aids, such as counting devices, matching games, number charts, graphs, posters, magic squares, and individual sets of flash cards which can be used in the classroom or with younger pupils.

21. Supervise the use of these homemade devices by younger or less advanced pupils.

22. Construct arithmetical devices such as: meter reading chart, model speedometer, an abacus for classroom use, models for teaching cubical contents, devices for teaching fractions, geometric designing—how to make string transparencies or how to make window transparencies.

23. Design and carry out a construction; e.g., a "city building" could be built to house community workers, which would involve making diagrammatic plans, measuring, and obtaining materials.

24. Build a mock fire station or a plan of a city involving measurement of various kinds, numbering of streets, etc.

25. Construct a scale model of a football or a baseball field showing distances involved.

26. Make a weather thermometer showing degrees, boiling and freezing points. Compare with clinical thermometer with its gradation into tenths of degrees.

27. Construct bird houses, kites, etc., using accurate measurements.

28. Refer to scale drawings of objects in the construction of objects in actual size.

29. Keep class records of attendance, milk bills, and stamp sales. Chart progress in Junior Red Cross work or other organization activities.

30. Keep statistical records of significance; e.g., number of children staying at school for lunch for whom table arrangements and play activities must be planned; weekly and monthly absences by cause, in order to determine why pupils are absent and how to prevent illness.

31. Summarize and record the totals of figures encountered in some classroom enterprise; e.g., sale of play stamps in room post office, circulation of books in a classroom library, money collected from sale of class photographs, kinds of items in a hobby exhibit.

32. Record daily temperatures at selected intervals by placing dots on wide-spaced graph paper. Connect the "dots" with a red line to show daily rising and falling temperature.

33. Graph daily temperatures over a long period of time and note the general downward or upward trend as the seasons advance.

34. Keep records of classroom experiments.

35. Make a chart showing weights, heights, and ages of children in the class; make generalizations.

36. Keep baseball chart showing weights, heights, batting averages of players, and number and percent of games won and lost by the team.

37. Make a chart on which to indicate one's own accomplishments in learning new spelling words weekly. Allow one square per word in vertical columns.

38. Keep own or team scores in a favorite class game for several days or weeks; study results to note gradual improvement, if any.

39. Post and explain significant charted items clipped from city newspapers, e.g., the league standing of a local or national baseball team.

40. Draw a September-to-June time line to show holiday celebration dates. Use ½″ blocked paper, allowing one square per day.

41. Make charts or graphs to show the increase in the population and the shift of centers of population.

42. Make charts or graphs showing the increase in postal rates through the years and the increase in the quantity of mail handled, the increase in the number of postal officials needed, the cost of maintaining this service, and the proposed changes which are under consideration by the government.

43. Make a graph showing the results of a sales tax stamp drive or paper drive conducted by the school.

44. Make charts showing the time zones in the United States or in the world and discuss their effects on travelers. Discuss effect of International Date Line on time.

45. Prepare scale maps useful for supplementing individual reports to the class.

46. Map a scale drawing of an airport showing runways and approaches.

47. Draw a plan for a living room, gymnasium, or classroom.

48. Make a time line of historical events.

49. Prepare a display of banking forms, insurance forms, mortgage forms, etc., with an explanation of each.

50. Collect illustrations or advertisements from newspapers and magazines for the bulletin board, centering the display around a different mathematical concept from time to time.

51. Display and discuss maps showing the rainfall in the United States, Africa, Asia, and other places. Make comparisons and draw conclusions.

52. Collect clippings from magazines and newspapers in which dates and time appear.

53. Make a "financial dictionary" by clipping phrases and sentences from magazines and newspapers, words such as *security, mortgage, interest, endowment,* and *tax.*

54. Assume full responsibility for the collection and redemption of sales tax stamps. This includes computing the amount to be refunded, filling out the necessary forms for the state, and mailing the stamps.

55. Make a list of personal uses for arithmetic in everyday life. Compare with the lists of two or three classmates and, with them, present a composite report to the whole class.

56. Act as leader in social studies projects (such as a market, grocery, post office, circus or puppet play) in which the ability to make change correctly is involved.

57. View filmstrips about measurement and counting; plan commentaries for use when they are shown to the class.

58. Create story problems to ask classmates to solve mentally; have the answer jotted down for reference.

59. Share with the class original story problems about a topic of mutual interest; e.g., Easter, vacation, pets.

60. Make up an arithmetic story problem and illustrate it in a series of pictures.

61. Write thought problems based on personal arithmetic experiences at school or home. File these in a special wall pocket for classroom enjoyment.

62. Write story problems about home interests in a booklet. Make an answer key for the back of the booklet.

63. Make original time-distance problems concerning jets or submarines.

64. Make original problems of any type.

65. Create number stories or poems for a booklet for the classroom library table.

66. Outline materials about the history of numbers read in books published for children. Insert illustrative drawings to help interpret the outline. Post the work on the classroom bulletin board.

67. Study a problem such as the cost of building a house (involving kinds of materials, fixtures, construction, installation, and labor costs).

68. Study the history of numbers.

69. Study other number systems, i.e., dyadic, duodecimal, etc.

70. Explore the history of measurement. Prepare a talk during which examples of measurement devices are shown.

71. Lead a small group in the study of a selected topic like "Calendars—Old and New." Plan with them some unique way to share their findings; e.g., cartoon-type drawings of people and their early calendars or a modern-day almanac.

72. Do research to find out the characteristics of geometric figures. Make models for a display.

73. Visit a surveyor and learn about the equipment which he uses.

74. Study architectural plans to note dimensions, area, quantitative relationships between rooms of various sizes, etc.

75. Study the relationship of musical notes and fractions.

76. Study systems of numeration in different number bases.

77. An excursion to the airport may raise problems like these for independent study and reporting: What statistics can be found to show that air travel is safe? How much faster are modern planes than early ones?

78. Learn to count to ten (or higher) in some foreign languages.

79. Read instruments of various kinds which measure miles, degrees, angles, or other abstractions. Note the more refined division of the clinical thermometer as contrasted with the regular thermometer.

80. Locate sources for obtaining data concerning the United States census; list interesting facts gleaned from this. Arrange principal cities in the United States in order of size.

81. Compare the length of time needed to cross a continent, an ocean, or circle the globe today, with that required at various times in the past by various means of transportation.

82. Read and explain railroad, bus, and air time tables. Plan imaginary trips showing connections and stopovers.

83. Explain the difference between net and gross cost; between net and gross income.

84. Learn to use the protractor.

85. Use an adding machine.

86. Compute the percent of discount offered by stores offering ½ or ⅓ off.

87. Give more than one solution to problems and examples.

88. Compare the measurements of the size and the rate of speed of an historic ship like the Mayflower with those of modern ships.

89. Participate in a pupil survey of the uses of measurement by a number of downtown business centers.

90. Measure rainfall and snowfall.

91. Make fractional measurements for building projects.

92. Measure shadows on the playground at different times of day.

93. Use measuring devices to show comparative weights of food consumed by animals or people.

94. Estimate the weight of packages to be mailed and the cost of mailing; check by weighing the packages and investigating and explaining the postal zones.

95. Estimate distances in the neighborhood.

96. Estimate the size of certain play areas. Check estimation by accurate measurement.

97. Lay out a baseball diamond or basketball court.

98. Learn to keep a simple personal budget of allowances, earnings, and expenditures.

99. Compile budgets for a pioneer family and present-day family of comparable size for a given period of time; compute increases in percentages.

100. Keep a record of family buying at special sales versus regular purchases and calculate economies effected by taking advantage of special sales.

101. Record father's car expenses for a week or month.

102. Figure mileage and expense for a family trip.

103. Compute cost of a class trip.

104. Compute the cost of traveling a given distance in the early days and at the present, and show the findings in chart or graph form.

105. Calculate comparative costs of cash payment versus credit buying.

106. Compute the cost of buying and stocking an aquarium or purchasing other equipment for the room.

107. Compute the average cost of feeding and housing pets in the schoolroom or at home.

108. Compute the expense involved in taking the class, or certain individuals, to camp for a week.

109. Investigate and report on the cost of sending books and other packages via United States mail according to various classes of mail.

110. Find out the lengths of time and the amount of money needed to take trips to various places in the United States by different means of transportation.

111. Reduce foreign money to our values.

112. Set up a fund for feeding class pets.

113. Assist in setting up a school savings bank.

114. Compute class orders for monthly magazines, etc.

115. Serve as leader of a small number group which is reading and working story problems created by classmates.

116. Serve as pupil helper when one's own group seatwork material has been mastered.

**Helpful References:**

Anderson, Raymond. *Romping Through Mathematics.* New York: Knopf, 1947. 152pp. $3.00. Story of necessary mental tools for counting and measuring.

Bendick, Jeanne. *How Much and How Many: The Story of Weights and Measures.* New York: Whittlesey, McGraw-Hill, 1960. 192pp. $2.95.

Bowers, Henry, and Joan E. Bowers. *Arithmetical Excursions: An Enrichment of Elementary Mathematics.* New York: Dover Publications, 1960. 320pp. Paper. $1.65. Source-book for fifth to tenth grades. Great variety of material on alternate methods of addition, subtraction, division, multiplication, and checking answers. Discusses primes, figurate numbers, bases other than 10, numbers in folklore.

Brandes, Louis Grant. *Yes, Math Can Be Fun.* Portland, Oregon: J. Weston Wald, Box 1075, 1960. 263pp. $2.50; student edition, $2.00.

Graham, L. A. *Ingenious Mathematical Problems and Methods.* New York: Dover Publications, 1951. 237pp. $1.45. Collection of problems adapted for teaching various skills, particularly to a gifted group.

Hogben, Lancelot. *The Wonderful World of Mathematics.* Garden City, N. Y.: Garden City Books, 1955. 69pp. $2.95. Story of how civilization and mathematics developed together.

Spitzer, Herbert F. *Practical Classroom Procedures for Enriching Arithmetic.* St. Louis, Mo.: Webster Publishing Company, 1956. 224pp. $4.32.

## Elementary — FOREIGN LANGUAGES

Foreign languages may be used as a source of enrichment for selected students or offered as a regular part of the curriculum for all students. Perhaps one or two students in a class may show an interest in a foreign language and by means of recorded lessons, TV courses, or correspondence courses, plus the teacher's interest, may engage independently in the study of a foreign language. In any case, emphasis at the beginning should be on listening and speaking. Oral activities will therefore assume the greatest importance. Learning dialogues, asking and answering questions, telling simple stories, and engaging in other oral presentations permit the children to become familiar with the use of the language. Singing songs, playing games, and learning riddles and short poems all help to make the language seem natural, and learning a language enjoyable.

Some children can learn to use the tape recorder for listening and practicing conversation. Tapes may be prepared which leave time after phrases for repetition or for answering questions. The student may listen, repeat, or answer, and then play back the tape for self-evaluation. Recorded lessons may be used for additional practice and for checking comprehension. If the school is not equipped with a language laboratory, tape recorders and record players ought to be available for teacher and student use.

Some children may want to move quickly to reading what they have learned in the foreign language. When this step has been made, a variety of reading materials at different levels of difficulty should be on hand for student selection. Instructional materials play a large role in foreign language learning. There should be available in the classroom an adequate number of films, filmstrips, slides, magazines, newspapers, pictures, posters, records, reference books, and readers in the foreign language.

**Enrichment Activities and Ideas:**

1. Present a series of pictures or a picture-story to the class and tell the story in the foreign language.
2. Show a picture to the class and tell something about the pictures in that language.
3. Tell simple stories to the class in the foreign language.
4. Present simple dramatizations of familiar stories to the class in foreign language.
5. Produce a puppet show with the script in the foreign language.
6. Dramatizations: These may include such activities as: Have a music store and sell musical instruments. Have a flower shop and sell flowers. Have a fashion shop and sell clothes. Have a grocery store and sell food. The family at home. The family at the table. A visit to the doctor or dentist. Shopping. Travel. In a kitchen. Restaurant scene.
7. Try creative dramatics in foreign language.
8. Learn songs in that language and teach to the class.
9. Retell an imaginary visit to a farm in the foreign country.
10. Prepare slides to illustrate episodes in a fairy tale. Give a brief oral description of the scene on the slides.
11. Make scrapbooks or posters illustrating: a house, rooms, furniture; family; meals; animals; flowers, etc. Each student can show his work, pointing to each item and making a statement about it in the foreign language.
12. Practice vocabulary by putting cut-outs on flannel board and naming the object while putting it on the board.
13. Make a different picture "menu" for breakfast, lunch, dinner, by pasting on a sheet of paper, pictures cut from advertisements. Tell in the foreign language what is on the menu.
14. Place on the board a group of pictures or words. Make a sentence about any one of these.
15. Paste picture of animals on a large cardboard. Tell a story of three or four sentences about each animal.
16. Count the number of girls or the number of boys in the class.
17. Count by twos. Count the number of children in the room, books on a shelf, months of the year, etc.
18. Do simple addition, subtraction, multiplication problems in the foreign language.
19. Choose a neighbor; say what you can about him in the foreign language.

20. Carry on telephone conversations in the foreign language on toy telephones.

21. Divide into pairs and make up conversations on a given topic, then each pair give its conversation before the others.

22. Make a picture dictionary in the foreign language.

23. Make a list of foreign language terms applied to clothing.

24. Make a picture book of typical costumes with two or three sentences to explain each picture.

25. Draw a map or chart of a community, label the places in the foreign language, and list occupation of the persons who work at each place.

26. Assume responsibility for labeling objects in the room in the foreign language.

27. Construct a foreign language calendar for the month. Write the month and days of the week in the foreign language. Use the calendar throughout the month, when needed.

28. Create riddles in the foreign language.

29. Make a storybook for younger children using words of the foreign language.

30. Illustrate simple original stories in the foreign language and make them into a booklet to be put in the classroom library.

31. Publish a simple news sheet in the foreign language which is being studied.

32. Correspond with students of other countries.

33. Read textbooks or storybooks used by children in another country.

34. Learn poems of suitable length and content.

35. Make collections of favorite stories in the foreign language.

36. Collect simple songs and poems of the country.

37. Collect postcards from the country.

38. Collect pictures of the country.

39. Collect foreign catalogs.

40. Bring in fashion magazines from the country being studied.

41. Collect and display magazines, tickets, books, etc.

42. Collect foreign coins.

43. Gather menus from foreign restaurants and steamships.

44. Plan an exhibit of pictures of insects collected by the class. Label each one in the foreign language.

45. Teach class members games in foreign language or using words of the foreign language.

46. Act as leader of games in foreign language.

47. Play a variation of "Twenty Questions," using the classifications *a person, an animal, a plant, a thing.*

48. Make a picture book of the country or countries showing scenes of mountains, rivers, lakes, islands, oceans, etc.

49. Make pictorial maps.

50. Prepare travel maps.

51. Plan an itinerary for a trip through the country of study.

52. Make a bulletin board display of news clippings of current events in the country of study.

53. Make a "Hall of Fame" with pictures of famous people of the given country.

54. Make a calendar of important holidays of the country.

55. Find out something about the history of the country under study.

56. Keep up with current events in the country of study.

57. Become an expert on some famous person from the country studied.

58. Find interesting facts about towns, villages, or regions of the country.

59. Learn foreign dances.

60. Read books with setting in the country of study.

61. Postage stamps may be used for projects. They may be used for learning the monetary system of the given country, abbreviations, geography, famous buildings, famous men, and important events in history. Dealers in stamps will arrange collections under given categories such as *animals, flowers, famous men,* etc. Each pupil can keep his own collection and do individual research.

62. Plan celebrations of the major holidays of the given country.

63. Listen to recordings of music of other countries.

64. List foreign language terms that have been introduced into American cookery.

65. Make change in foreign money. Experience can be gained by playing store.

66. Learn names of clubs and assemblies in foreign language (P.T.A., programs, parties).

67. Learn names of school sports in the foreign language.

68. Learn names of each student in its equivalent in the other language.

69. Give your own telephone number and address in the foreign language. Make a class directory of these.

70. Prepare flash cards for vocabulary drill.

71. Make a "frieze" of pictures representing the words that the class has learned, so that it extends around the room.

### Helpful References:

Alden, Douglas W. (editor). *Materials List for Use by Teachers of Modern Foreign Languages.* New York: Modern Foreign Language Association, 70 Fifth Ave., 1959. 85pp. 50¢ for handling charges.

Andersson, Theodore. *The Teaching of Foreign Languages in the Elementary School.* Boston: D. C. Heath, 1953. 119pp. $1.25.

Johnston, Marjorie C. *References on Foreign Languages in the Elementary School.* Circular 495—1957, U.S. Office of Education. Washington, D.C.: Supt. of Documents, Government Printing Office. 11pp. 35¢.

Keesee, Elizabeth. *Modern Foreign Languages in the Elementary School; Teaching Techniques.* U.S. Office of Education Bulletin 29—1960. Washington, D.C.: Supt. of Documents, Government Printing Office. 65pp. 45¢.

Thompson, Elizabeth E., and Arthur E. Hamalainen. *Foreign Language Teaching in Elementary Schools.* Washington, D.C.: Association for Supervision and Curriculum Development, 1958. 46pp. $1.00.

# Part II – ENRICHMENT IN SECONDARY SCHOOL SUBJECTS

## General Suggestions

Since the secondary classroom is curriculum-centered rather than a skill-learning situation, enrichment activities can often easily be included in the program. The secondary teacher is a specialist rather than a generalist, with a depth of preparation in his field. He has a knowledge of sources of information to which he can refer his students, rather than answer all questions himself. His own enthusiasm for his subject can be transmitted to his able students, who can be encouraged to explore topics on their own, to formulate important and basic questions, and to carry on research in order to find the answers.

A problem-solving approach is effective both with groups and with individuals, as there is high student interest in working on a problem which they have helped to plan. Such activity will provide experience in handling abstractions and will help to build research skills—efficient note-taking, the use of reference tools, able reporting (both oral and written).

A valuable collection of enrichment suggestions and ideas can be accumulated by any teacher. These can be kept on index cards, in file folders, or in a loose-leaf notebook. A question box or suggestion box for student ideas can help to expand this, and students can be referred directly to this handbook of suggestions.

A flexible classroom arrangement is desirable. Wherever possible, furniture should be grouped so that students can carry on individual work or committee projects. There should be a place to experiment, and a great variety of instructional materials as well as material for the construction of models, displays, and the like. Library facilities are of primary importance and should include (in either the classroom or the school library) advanced textbooks, reference books, professional magazines in the field. The students themselves can help to build this library, lending some of their own books on appropriate topics for a semester or for the year.

A "core curriculum" is an advantage (although not a necessity) in an enrichment program, because of its flexibility and because it permits integration of several areas and enables the student to relate a topic to several fields. Any subject area, however, may be enriched in connection with the regular classroom work, through work in small groups, or through individual conferences and assignments. Teacher-student planning is important, both for identification of interests and for guidance in pursuing these interests. Student membership in academic and special interest clubs can provide opportunities for extending classroom work. Learning to use a typewriter will facilitate written expression and also is a skill important to any college-bound student.

In Part II of this book, activities are suggested for five secondary subject-matter areas. Art and music are not included, since they are felt to be enrichment experiences in themselves, but there are many suggestions which involve art and music activities. The *Helpful References* at the end of each subject area include sources of additional enrichment activities or of material which relates to such activities. Many of these publications are inexpensive enough to be added to the classroom library.

## Secondary — ENGLISH

An enrichment program in English will include extensive reading, present many opportunities for practice in expository writing and effective speaking, and encourage creative thinking and writing. An appreciation of the world's literature through reading can be developed where a variety of books is on hand for student use. Seminars or small groups organized for the purpose of discussing good books are very helpful in providing for students who are interested in reading beyond that which is required in the regular English class. Discrimination in reading can be encouraged by learning to verify factual material read, checking sources of information, reviewing qualifications of authors, comparing reviews of books with the books themselves, reading in current periodicals, comparing periodicals, and reading several articles on one topic.

Valuable experience in speaking is obtained through participation in dramatics, school assemblies, speaking contests, school clubs, and radio programs, and by assuming leadership roles in extracurricular activities. Practice in presenting information in written form may be gained by work on a class or a school newspaper, and by correlation of English with other subject areas.

Research in any area on topics of individual interest is appropriate for an English paper.

Creative writing is often an interest of talented students and can be encouraged by the formation of groups of students interested in writing poetry, short stories, or essays. A school literary magazine is an outlet for creative writing and many students are motivated by the writing contests sponsored by various magazines or newspapers.

**Enrichment Activities and Ideas:**

1. Use the dictionary, glossary and thesaurus to improve the range and exactness of effective vocabulary.
2. Use library resources such as card catalog, atlas, yearbooks, and *Reader's Guide* to locate and gather additional information on a topic.
3. Locate and use numerous authoritative sources to verify facts and give weight to opinions.
4. Read materials to deepen and broaden hobbies.
5. Read biographies of famous or favorite authors.
6. Become an authority on some famous person through reading biographies.
7. Use review sources such as *Saturday Review* or literary supplements of *New York Times* and *New York Herald Tribune,* including reviews of current stage, cinema, and television presentations.
8. Read regularly periodicals such as the *New York Times, Harper's, Saturday Review,* and the *Atlantic.*
9. Read current literature of foreign countries as well as English literature. Examples are: *Buddenbrooks* (Germany); *The House by the Medlar Tree* (Italy); *Hania* (Poland); *Father and Sons* (Russia); *The Wanderer* (France).
10. Design and follow a balanced leisure-time reading program.
11. Trace the accuracy of newspaper reports on a single incident over a period of days.
12. Compare newspapers in treatment of one topic.
13. By studying the headlines, the news articles, the syndicated column, the editorial, the pictures, the cartoons, all from the same paper on the same topic, evaluate methods for influencing public opinion. Judge the consistency of the paper.
14. Compare magazines in treatment of one topic.
15. Compare American and foreign magazines.
16. Select the best magazine in each of several fields.

17. Make a study of the joke columns or comics in various newspapers. "Are they justified?" "What purpose do they serve?" etc.

18. Study current opinions on an issue of significance such as compulsory health insurance as discussed in such publications as *Time, Fortune,* the *Chicago Tribune,* the *New York Times,* the *Boston American, Harper's,* the *Nation,* the *Reader's Digest,* the *San Francisco Chronicle,* and the local paper. Arrange articles from these sources on the bulletin board on a "left" or "right" scale.

19. Compare Addison and Steele with Walter Lippman or some modern columnist.

20. Make evaluations of film, television, stage, radio, and book interpretations of stories which have appeared in two or more of those media.

21. Compare reactions of two or more professional reviewers to the same motion picture or program.

22. Compare American films with foreign films.

23. Make a selection of the best short stories of the year.

24. Make a study of Nobel and Pulitzer Prize winners.

25. Study literature with settings in your local area.

26. Read two modern novels of similar nature and compare. (Example: *The Last Hurrah, The Golden Kazoo,* or *Advise and Consent.*)

27. Make a study of several of Dickens' novels, noting the sociological aspects of the times as seen in his works.

28. Make a comparison of Victorian ideas in George Eliot's work and in Dickens'.

29. Compare Part IV of *Gulliver's Travels* with *The Animal Farm.*

30. Study such topics as "war," "death," "religion," "love," by reading poetry. Make an anthology of poetry on this topic. Write an original poem to include; or more illustrations.

31. Determine an author's values in a selection and compare them with the reader's.

32. Make a study of Verdi's *Macbeth* in relation to Shakespeare's drama. Make a further comparative study of these two works, in relation to the psychological, emotional, and physical disintegration of Boris Godunov (Pushkin's poem and Moussorgsky's opera).

33. Make a comparative study of music related to the story of Romeo and Juliet, as composed by Berlioz, Tchaikovsky, Prokofiev, and Gounod.

34. Make a study of the music of *Also Sprach Zarathustra* by Richard Strauss, as related to the passages from Nietzsche to which it unquestionably refers.

35. Compare the letters or memoirs of literary figures with their biographies.

36. By selective reading of essays, novels, short stories, drama, etc., make studies of such topics as human progress, freedom and responsibility, the nature of tragedy.

37. Learn the techniques of speedy and accurate note-taking.

38. Learn to use footnotes, abbreviations, and library classifications.

39. Catalog materials.

40. Make objective check lists, charts, and outlines as guides for gathering information.

41. Compile a list of new words learned and make a study of their origin.

42. Compile a dictionary of school language after the fashion of Samuel Johnson's *Dictionary of the English Language,* trying to maintain some of Johnson's wit.

43. Prepare a glossary of new words in the American language.

44. Develop a list of standards for judging various types of movies and TV programs.

45. Write a review of a concert, opera, ballet, etc., discussing both the music and its performance.

46. Write reviews of new books, magazines, movies, TV programs.

47. Write an appraisal of literary supplements and reviews.

48. From a list of important modern writers choose one and prepare a bibliography of his work as found in current periodicals. Include brief reviews of some of his writings.

49. Prepare specifications for a proposed new magazine.

50. Prepare anthologies of current materials: verse, essays, editorials, stories, TV and motion picture criticisms.

51. Write a petition to amend the charter or constitution of any organization or level of government.

52. Write a political speech for a local state or national office.

53. Use the *New Yorker* "profile" technique in describing a character in the *Canterbury Tales* or other literary work.

54. Write book reports in the form of a series of letters between the author and an imaginary critic.

55. Write book reports as dialogues between two or more characters discussing their reactions to their parts in the story.

56. Write an obituary notice that might have been printed in a newspaper on the day following a famous person's death. Follow this by writing an article which might be printed in the same newspaper to celebrate the 100th or 200th anniversary of his birth, placing him in proper perspective insofar as his life and his works are concerned.

57. Write a one-paragraph news article about the best news you can imagine.

58. Write words to a well-known melody.

59. Match lines of poetry with pictures.

60. Write character sketches, pointing out desirable and undesirable traits.

61. By reading literature of other countries, find the universality of human traits.

62. Write character descriptions by using dialogues.

63. Write a study of yourself (or someone else whom you know well), attempting to analyze and reveal certain traits and show the way in which these traits influence character.

64. Experiment with relating a brief incident revealing a human trait such as: shyness, kindness, modesty, cruelty, etc.

65. Try dealing in verse with a great human issue like atomic energy.

66. Try to formulate and write a tentative statement of your own philosophy of life.

67. Write about lives of characters in a novel before and after the events of the novel.

68. Take a character out of a book and transplant him into the Twentieth Century, writing a story about his reactions to modern life.

69. Write "omitted" chapters to accompany books that have been read.

70. Try your hand at various literary forms, such as poetry, drama, biography, novel, short story, and essay.

71. Write an original myth.

72. Write an essay satirizing the TV habit, the comics, or some modern fad.

73. Prepare an advertisement for a book which you have read.

74. Try writing a story in the form of a series of letters.

75. Write about imaginary experiences in Sixteenth Century Spain, in the palace of a Japanese war lord, conversations with an Eastern philosopher, etc.

76. Write about experiences close to your life—diaries; requests for materials; descriptions of friends, acquaintances and enemies; reactions to morbid news stories or newspaper features; attempts to improve on "lovelorn columns."

77. Keep a journal corresponding to an artist's sketch pad. Record not just your personal life, but descriptions of people, events, and places. These impressions may later form the basis or situation for a story. Look at notebooks of such writers as F. Scott Fitzgerald or Chekov.

78. Publish a school literary magazine containing selections of students' creative writing.

79. The school system may annually publish an anthology of best poetry written by students.

80. Get from the library a collection of trade magazines which are designed to give tips to prospective authors about writing and about markets for their material.

81. Choose a dramatic scene from some novel or story and rewrite it for radio. This may be played over the school public address system.

82. Write, produce, and direct dramatic productions; plan stage settings; design costumes.

83. Participate in community theatre groups, school operettas and plays.

84. Give dramatic readings for assemblies or parents' groups.

85. Prepare a tape recording of a documentary account of the life of some famous person.

86. Study possibilities of a particular book as a basis of a good movie. What changes would be necessary?

87. Hold imaginary press conferences with characters from a novel.

88. Plan an annual Shakespeare festival.

89. Interview resource persons in preparation for an oral report.

90. Read aloud difficult material to groups that might be less able to read this material themselves.

91. Develop and use techniques for debates, panel discussions, and parliamentary procedures.

92. Take charge of small groups for conversational experience and grammatical practice.

93. Serve as chairman of discussion groups.

94. Select poems suitable for choral work and arrange them for a choral speaking group.

95. Debate controversial viewpoints in philosophical essays.

96. Select a speech from *Vital Speeches*, *New York Times*, etc. Examine closely and outline in clear enough detail to deliver speech, retaining main points.

97. Engage in debates on challenging subjects.

98. Listen to debates, discussions, newscasts, and talk to form opinions, to hold discussions, to draw conclusions.

99. Listen to speakers to pick out main points of their talks and to arrange them in sequence.

100. Listen to radio and television performers to discover: errors or difficulties in speech, new words, beautiful and appropriate words.

101. Make and listen to recordings of your own voice to discover errors and difficulties.

102. Listen to the various sounds in and around the school and give an opinion of their effects upon the pupils.

103. Invent games which will make drill work in grammar fun instead of a tedious chore.

104. Draw original designs for magazine covers.

105. Design illustrations of famous quotations.

106. Prepare a frieze illustrating scenes in novels, plays, etc.

107. Make a literary map of the state, a region, or a country.

108. Prepare a filmstrip on a literary subject.

109. Plan and arrange hall or classroom bulletin boards.

110. Plan and carry out a decorating scheme for a special occasion.

111. Compose lyrics and music of songs for special occasions; set poems to music.

112. Create stories or pictures to interpret musical selections or poems.

113. Collect favorite poems and mimeograph collections or anthologies on particular topics—city life, nature, heroism, etc.

114. Arrange exhibits of books around a given theme.

115. Conduct book fairs.

116. The bulletin board might be labeled "Picture-Making Words" and clippings could be pinned up from the local newspaper, from the big city papers, from *Time*, the *New Republic*, *Reader's Digest*, and other magazines. Another week the board could be labeled "Emotional Words"; another week, "Platitudes and Clichés."

117. Join a writing club, take courses in journalism, meet with other young people who are also interested in writing.

118. Organize book and classics clubs.

119. If a novelist, poet, or journalist lives in your community, arrange for a meeting with him or her.

120. Report to class on visits to local playhouses, radio or TV stations, and libraries.

121. Serve on student committees which help the librarian select books for purchase by the school.

122. Help operate a classroom library.

123. Participate in the International Tape Exchange. For names and address of students or groups interested in international tape exchange, write to World Tape Pals, Inc., Postoffice Box 9211, Dallas, Texas.

124. Manage school publicity bureau for release of school news to local newspapers and radio stations.

125. Form a school Speakers' Bureau, to provide speakers for homeroom groups, school programs, service clubs in the community, churches, radio and television programs.

126. Compile a "Who's Who" of characters from fiction—English literature, American literature, world literature.

### Helpful References:

American Library Association, Editorial Committee. *A Basic Book Collection for High Schools.* Chicago, Ill.: American Library Association, 1957. 186pp. $2.75.

National Council for Teachers of English, Committee on College Reading. *Good Reading.* Champaign, Ill.: The Council, 1960. 287pp. $4.00; paperback, 80¢ from Dept. NAL, R. R. Bowker Company, 62 W. 45th St., New York 36. A guide to the world's best books.

National Council of Teachers of English. *Books for You.* Champaign, Ill.: The Council, 1959. 155pp. 60¢. A list for leisure reading by students in senior high school.

National Council of Teachers of English. *Your Reading.* Champaign, Ill.: The Council, 1960. 109pp. 75¢. A list for junior high schools.

## Secondary — SOCIAL STUDIES

Independent reading and research will make up a large part of any enrichment program in the social studies. Students can accept responsibility for planning and pursuing a large part of their study. In planning projects with gifted students, an adult approach based upon conferences, seminars, problem-solving methods, and teacher-pupil planning should be used. Student projects may be voluntary, alternative assignments or in some way integrated with the regular class work, but should always give the student freedom of choice to explore the field and discover what is especially intriguing.

The gifted student can deal with topics beyond the grasp of many of the other students and his studies should therefore be planned with emphasis on concepts, theories, ideas, relationships, and generalizations. He should become familiar with the methods of research used by social scientists—gathering information, interpreting data, and organizing his material for written or oral presentation. His program should include wide reading from a variety of sources in order to become familiar with the literature of the social sciences. Often coverage must be sacrificed to depth. However, a balanced program would always include study of non-American and non-Western areas.

Students may report the results of their study in various types of class presentations, debates, discussions, forums, oral or written reports, or in research papers.

### Enrichment Activities and Ideas:

1. Conduct a modified version of a popular TV panel program such as "Meet the Press."
2. A symposium of three or more students on the Taft-Hartley Law—one for outright repeal, one for retention, and one for modification.
3. Lecture-debate on control of atomic energy, including student talks on sources of uranium, peacetime possibilities, need for control, and a debate on the American vs. the Russian plan.
4. Hold an imaginary press conference with a historical figure.
5. Reproduction of historical situations: American Constitutional Convention, Versailles Peace Conference, Eichmann trial, Nuremburg trials, Albany Plan of Union, Lee's surrender, Governor's Conference on Conservation, Dred Scott Decision, Scopes Monkey Trial, Signing of the Mayflower Compact, Yalta Conference, Hartford Convention, Munich Conference, Greek Assembly, a day in the court of Queen Elizabeth I.
6. Dramatizations such as: The Negro in America—(Act 1) Landing at Williamsburg in 1619, (Act 2) Dred Scott Decision, (Act 3) Supreme Court Decision of 1954; labor-management mediation proceeding; congressional hearing on any topic; etc.
7. Participate in role-playing activities: court trial, sessions of Congress or state legislature, Latin-American conference, United Nations session, New England town meeting, peace conference,

corporation director's meeting, labor union convention, presidential nominating convention.

8. A group of persons of highly diversified attitudes (a Czech Communist, a German Social Democrat, and an English conservative) meet in a railroad station and become involved in a conversation.

9. Formal debate on such topics as: world federation, electoral college, UN debate with special viewpoints of various countries, U. S. bases abroad, Berlin.

10. Prepare lists of criteria by which to judge validity of information and to detect propaganda.

11. Make an analysis of propaganda in pamphlet material from NAM and labor unions, advertisements, materials from civic groups, from embassies, etc.

12. Compare two newspapers for accuracy and objectivity.

13. Compare radio news reports with those of a newspaper.

14. Find statements whose accuracy is open to question and verify or disprove them.

15. Obtain written reports from the UN and the U. S. State Department on a recent international event; note differences in emphasis.

16. Analyze treatment of topics by different authors.

17. Buy fictional stocks in some company listed on the New York Stock Exchange. Follow the daily fluctuations in this investment and compute gains or losses over a period of time.

18. Make an analysis of the stock market trend for a term, explaining reasons for observed fluctuations.

19. Translate one form of expression into another: a paragraph into a table of figures, a class talk, or a graph.

20. Trace provisions of the Israeli Constitution (or any recent one) to the sources that served as its models.

21. Choose the five greatest ideas, the five greatest men, the five greatest events, the five greatest tragedies, the five greatest books, or the five greatest examples of human error in the history of man. Report to the class and defend choices.

22. Analyze statements of historical figures. For example: Napoleon, "Wherever I went in Europe I sowed liberty with both hands." Roosevelt, "We have nothing to fear but fear itself." John Jay, "The people who own the country ought to govern it."

23. Consider such questions as, "If you were President of the United States, what four things would you do to improve our relations with Latin America?"

24. Keep an imaginary diary; adapt to historical period and personalities of the time.

25. Write ballads describing events in the lives of famous men.

26. Prepare a newspaper supposedly written at some interesting period of history. For example: William Lloyd Garrison's *Liberator;* a Boston paper and a Richmond paper following significant events of the Civil War; an English newspaper and an American newspaper during the War for Independence.

27. Draw cartoons emphasizing points in contemporary affairs or cartoons of a historical nature.

28. Write a constitution for a United States of Europe.

29. Organize a third party movement in the United States. Develop a platform correcting abuses in both political parties.

30. Write up reports of research projects as if they were to be published by the *Saturday Evening Post, American Heritage,* etc.

31. Compile a social studies magazine.

32. Take any issue of a local newspaper and rewrite specified sections—front page, editorial, letters to the editor—as they would probably be written in a country under some form of dictatorship.

33. Develop an understanding of the problems others face by putting ourselves in their place; obtaining insights into prejudice on the basis of race, culture, and nationality. Use role playing, or presenting another's point of view in a paper, talk, or report.

34. A history club can compile a history of the world by asking student groups from each country to write a history of their own country. Addresses of good schools may be obtained from UNESCO, UN delegates, embassies, etc. This activity may be carried on over a period of years.

35. Conduct research and report to class on such topics as: the effect of climate on people's lives, the "Great Man" theory of history, wars and natural resources, population movements of the past and present, what is common law, rise and fall of the Nazis in Germany, music of the Middle Ages, relationship of politics and economics.

36. Study topics of a mature nature such as: organization and functions of administrative agencies; the civil rights cases of the Supreme Court; various interpretations of the causes of the Civil War; various interpretations of the causes of the War of 1812; theories of well-known economists, sociologists, anthropologists, historians, etc.; various philosophies of history, etc.

37. Relate music, art, and architecture to the history and geography of countries.

38. Study automation as it developed in our past and discuss how it may affect our future.

39. Plan and carry on group research on such topics as: countries under Communist control; countries of the free world; patterns of organization and processes in agricultural, mining, industrial, governmental, or transportation enterprises; use and effects of atomic energy in war and peace; the place of political parties in our nation; contributions of foreign cultures to the American way of life; next steps in conservation; the effect of science on daily living, from economic, social, and political viewpoints.

40. Carry on individual research on the historical background and on current material related to such topics as nationalism, imperialism, civil rights, the judicial system, etc.

41. Make a textbook supplement on such topics as: cost of living, Federal budget, unemployment, census, living conditions in other countries, volume of trade, Kennedy administration, number in the labor force, average annual wage, traffic fatalities, small business failures, etc.

42. Make a comparative study of various types of government, using individual countries as examples.

43. Study current events on a national and international basis as they affect us in this school and town.

44. After a class completes its study of a particular country, a student volunteers to be the expert on that country for the rest of the term. He gives a brief report periodically on important happenings in his country.

45. Make a summary of the developments of the week in one particular phase of the news.

46. Assume responsibility for keeping news map up to date; maintain a news bulletin board.

47. Plan and present an assembly program concerning a significant current problem.

48. Listen to presidential press conferences. Lead a class discussion on the presidential program.

49. Collect historical realia in the community and arrange exhibits.

50. Locate the places of historical importance in the county. Make a map with historical sites marked, accompanied by explanations of the importance of each spot marked.

51. Write a local history of the community, county, or state to be used as collateral reading.

52. Attend local events and report back to the class—cornerstone layings, town council meetings, meetings of civic groups, citi-

zenship oath ceremonies, political rallies and debates, sessions of governmental bodies, lectures, college commencements.

53. Plan a community redevelopment project. (a) Make recommendations to public officials for the improvement of some local facilities. (b) Lead a drive to bring about some improvement needed in the community.

54. Study and evaluate local provisions for providing water, electricity, gas, sanitary protection, sewage disposal, garbage removal, police and fire protection, soil conservation, streets and roads, air raid defense.

55. Plan a model community of twenty-five years from now.

56. Take over offices of local government for a day. Work as an intern in local government agencies.

57. Conduct a census of school or community and study data to determine the nature of the population.

58. Conduct an opinion poll of school or community on an issue of current importance.

59. Interview people of the community as one method of research.

60. Gather data on resources in the community as primary sources for research.

61. Make field trips to: seat of local government, state capitol, court room, historical sites, office of farm agent, chamber of commerce offices, department store, Indian reservation, power dam, harbor, housing project, underprivileged section of city, museums, recreation centers.

62. Collect and maintain files of clippings and pictures pertaining to areas of interest.

63. Prepare exhibits using postage stamps for illustrations of events, persons, or places.

64. Design travel folders. Order travel folders for display.

65. Use topics such as the French Revolution or the Industrial Revolution, as subjects for paintings, drawings, and other forms of art.

66. Make a pictorial map of your state, the United States, or other countries.

67. Students with mechanical abilities can make models of historical buildings, dioramas, historical machines (such as the first steamboat or the first railroad locomotive), or models of the stagecoaches or covered wagons that were used in the westward migration.

68. Make or collect models of present and past types of ships, automobiles, airplanes, farm equipment, horse-drawn vehicles, weapons, furniture, architecture.

69. Make relief models, using various materials.

70. Make stamp map of the United States.

71. Make letter cancellation map.

72. Make maps showing trade routes, population distribution, natural resources, industrial development, climate, railroads, topography, farm products, air routes between major airports, and outstanding features of any area.

73. Make a current events map.

74. Make special maps of: containment of Communism; growth of Communism; membership in the UN, NATO, SEATO, OAS, Warsaw Pact.

75. Draw graphs of data found in social studies subject matter.

76. Construct graphs and charts on such topics as: business cycle, Kennedy cabinet, GNP (gross national product), money in circulation, stock market trends.

77. Make an illustrated time line.

78. Make comparative time lines linking events in America with developments in Europe.

79. Write letters and make arrangements for class field trip to historical museum.

80. Serve as parliamentarian for meetings of class and school organizations.

81. Manage campaigns of candidates for school offices.

82. Organize school elections and instruct student body in procedures to be followed.

83. Serve as librarian for classroom collection of social studies books and pamphlets.

84. Select and invite outstanding speakers to talk to class—persons such as members of minority group in local community, local historian, traveler, business man, government official, editor, lawyer, farm agent, judge, college professor, foreign-born resident, police official.

85. Compile annotated directories of local recreational facilities, training agencies, vocational opportunities, religious and charitable institutions, hospitals and clinics, historical and scenic sites, conservation projects.

86. Prepare letters to city official, county commissioner, congressmen, diplomats, or the Secretary-General of the United Nations, stating the opinions of the class.

87. Organize a Current Events Club or an International Relations Club.

### Helpful References:

American Library Association, Young Adult Services Division. *Richer by Asia.* Chicago: The Association, 1959. 64pp. $1.25. A selected bibliography of books and other material promoting East-West understanding.

Logasa, Hannah. *Historical Fiction: Guide for Junior and Senior High Schools and Colleges.* Philadelphia: McKinley Publishing Co., 1960. 316pp. $6.50.

*Resources for Citizenship: A Guide to the Selection of Teaching Materials.* New York: Columbia University, Citizenship Education Project, 1955. 328pp. $2.95. Annotated list of audio-visual and reading materials.

World Confederation of Organizations of the Teaching Profession. *AV Aids for International Understanding.* Washington, D.C.: World Confederation, 1227 Sixteenth St., N.W., 1961. 184pp. $2.50. Mimeographed.

*World History Bibliography.* Albany, N.Y.: Bureau of Secondary Curriculum Development, New York State Education Department, 1959. 112pp. 35¢.

*World History Book List for High Schools.* Washington, D.C.: National Council for the Social Studies, 1959. 119pp. $1.25. A bibliography of supplementary reading.

## Secondary — SCIENCE

The science program can be enriched by extension in the principal areas of reading, experimenting, and reporting. Reading should include selections from original literature of science as well as contemporary scientific thinking and discovery. Students should have the opportunity to work with many different types of laboratory equipment and apparatus and to become acquainted with the various techniques of laboratory work. Students should plan experimentation, observe, and record data. Laboratory work requiring students to design their own experiments and procedures and to draw original conclusions is far more worthwhile than merely following the directions of a manual. Enrichment in the science program should include the opportunity to explore fields not presented in textbooks and to succeed or fail in research projects.

Research and experimentation ultimately result in reporting. Able students should learn to present clear explanations of their plan of experimentation and the conclusions they draw at the end. They should become equally skilled in oral and written reporting. Seminars and small groups of students undertaking research offer more opportunities for oral presentations and discussion than is possible in the regular classroom. Science clubs may offer experiences of this type by featuring programs of student demonstrations, reports, panels, and group discussions.

The suggestions listed below are not grouped by subject content but by type of activity. Many are of a general nature and can be adapted to use in different areas. It may also be helpful to look through the section on elementary science for activities which can be extended for use on the secondary level.

### Enrichment Activities and Ideas:

1. Engage in library research on scientific subjects.
2. Make a study of modern theories of the origin and evolution of the universe, galaxies, and the solar system.
3. Learn about modern methods of studying the universe and solar system, such as the use of radio telescopes as well as optical telescopes, the use of tools for analyzing light waves and radiations from space, and the use of rockets.
4. Consider the impact of these modern developments upon our general view of the nature of the universe and the solar system.
5. Study the variety of fossils in sedimentary rock and learn how the ages of the fossils are determined.
6. Study some of the recent researches in biochemistry that fall in line with the concept of evolution.
7. Study Darwin's theory of the origin of the species in the light of how it was received by society, what influences it had on people's thinking and on the work of other scientists.
8. Trace man's development of new weapons and how this affected methods of warfare.
9. Study a scientific theory by tracing the development of representative classical theories in the history of science.
10. Read excerpts of Gregor Mendel's *Experiments in Plant Hybridization* up to and including the date for the $F_2$ generation of monohybrids. Attempt an explanation of the consistency of the seven experiments described.
11. Read not only the findings of Mendel, Morgan, and Muller, but also those of Beadle, Tatum, Lederberg, and Zinder, who in recent years have opened up the field of chemical genetics.
12. In chemistry, study John Dalton's diagrams of elements and their weights as given in his *A New System of Chemical*

*Philosophy.* After examining his data for the weights of elements in CO and $CO_2$, devise a theory to explain the facts.

13. Study the chemical reaction between a piece of coal and various chemicals.

14. Study Ohm's Law, using ammeters and voltmeters in obtaining data.

15. Investigate the implications of nuclear energy for world peace, for the moral responsibilities of world leadership, and for the improvement of the standard of living of the world's peoples.

16. Read about the recent explorations of the oceans.

17. Study new theories accounting for the glacial and interglacial periods of the past million years.

18. Study modern theories concerning basic causes of weather —influence on weather of arctic ice caps, ocean currents, current research on weather.

19. Read from the history of science and from original literature.

20. Compile a listing of important men in the history of science and write a thumbnail sketch of each, emphasizing his special contribution.

21. Do outside reading in scientific periodicals.

22. Prepare a calendar for regions of midnight sun and long nights.

23. Study the absorption of radioactive phosphorus by freshwater algae.

24. Observe and chart stars, constellations, and man-made satellites. Use sky charts, telescope, and spectrocopes.

25. Design and carry out experiments to determine quantitatively such values as heats of neutralization.

26. Test foods for vitamin content.

27. Take bacteria counts from water, glasses, utensils, plates from local sources.

28. Test agricultural products (fruits, vegetables) to determine amount of residue remaining from insect or weed sprays.

29. Experiment with plant grafting.

30. Do projects or special studies in such areas as: microbiology, field biology, advanced general chemistry (utilizing techniques of qualitative and quantitative analysis), atomic physics, electronics and electricity, geophysics, history of science (or case histories), astronomy, geochemistry.

31. Learn the expert use and operation of laboratory equipment of all types (analytical balance, microscope, electric oven, autoclave, etc.).

32. Experiment for the improvement of equipment.

33. Design new laboratory equipment.

34. Learn laboratory technques (histological, bacteriological, techniques of analytical chemistry).

35. Construct a weather station on school grounds to gather data on wind direction, air pressure, and temperature; devise instruments if commercial ones are not available.

36. Construct a crystal radio set and develop understanding of electronics.

37. Obtain a radio amateur's license.

38. Build and install a hi-fi set for the school.

39. Make an electric toaster.

40. Make constructions such as ripple tank, various types of wave generators and stroboscopes, and utilize these devices in determinations and discovery of frequency, wavelength, and amplitude relationships.

41. Construct pieces of apparatus that are not available in the school laboratory.

42. Build a small laboratory at home.

43. Make various types of models of molecules.

44. Make drawings of cross-sections of a volcano, oil well, etc.

45. Collect and analyze soil samples.

46. Collect insects.

47. Participate in science clubs.

48. Plan programs for science clubs. Include pupil reports, demonstrations, panels, film showings, lectures by outside speakers, etc.

49. Organize specialized science clubs around one central interest such as research techniques, field biology, astronomy, etc.

50. Participate in science congresses featuring reports, demonstrations, and discussions.

51. Participate in Science Fairs and competitions.

52. Set up and give demonstrations for the class.

53. Organize a student committee to dramatize the importance of the work of several great scientists, emphasizing the contributions each has made toward improving our way of life. Each "character" speaks as though he were looking back on the world as it is today and as though he were able to see from one vantage point the effects of his particular contributions.

54. Meet and talk with practicing scientists.

55. Prepare written reports of work for the school science journal or for other journals.

56. Read and abstract current science articles for classroom files.

57. Take week-end trips to study the ecological relationships of local fauna and flora.

58. Investigate natural areas near the school to determine ecological relationships among living things and geological phenomena, such as the effects of weathering, erosion, and stratification.

59. Plan correction of erosion on well-known local areas.

60. Help prepare teaching materials in chemistry, physics, or biology.

61. Assist the science teacher in his field of special interest.

62. Give demonstrations or lessons to younger students.

63. Help organize and maintain a school museum.

64. Maintain a vivarium of forms particularly useful in biological work. Maintain insects, mammals, cultures of common protozoa and algae.

65. Keep articles and reports of new scientific developments posted on a class bulletin board.

66. Serve as laboratory assistants.

67. Use the biology, chemistry, and physics laboratories, under the direction of the teacher or selected students, for performance of individual experiments.

68. Engage in self-directed study. Do advanced experimental work in the regular laboratory period. Use supplemental texts, references, individual or group conferences with teacher.

69. Serve as apprentice to local scientists to learn basic research techniques and the use of scientific materials.

70. Work in local industrial or medical laboratories.

71. Participate in University Summer Programs.

72. Enroll in a correspondence course from a university.

73. Subscribe to a scientific journal such as: *Science Digest, Scientific American, Journal of the American Chemical Society, Natural History Magazine, Science World, Tomorrow's Scientists,* or *Science.*

**Helpful References:**

Deason, Hilary J. *The AAAS Science Book List.* Washington, D.C.: American Association for the Advancement of Science, 1515 Massachusetts Ave., N.W., 1959. 140pp. $1.00.

Deason, Hilary J. *The Traveling High School Science Library.* (5th ed.) Washington, D.C.: American Association for the Advancement of Science, 1959. 61pp. 25¢.

Deason, Hilary J., and Robert W. Lynn. *An Inexpensive Science Library.* (5th ed.) Washington, D.C.: American Association for the Advancement of Science, 1961. 87pp. 25¢. A selected list of some 400 paperbound science books.

*Encouraging Future Scientists: Student Projects.* Washington, D.C.: NEA, National Science Teachers Association, 1958. 24pp. 50¢.

Moore, Shirley, and Judith Viorst (editors). *The Wonderful World of Science.* New York: Bantam Books, 1961. 246pp. 50¢. Sourcebook of photos, kits, do-it-yourself projects.

Patterson, Margaret E., and Joseph H. Kraus. *Thousands of Science Projects.* (5th ed.) Washington, D.C.: Science Service, 1719 N Street, N.W., 1957. 25¢.

*Planning for Excellence in High School Science.* Washington, D.C.: NEA, National Science Teachers Association, 1961. 67pp. $1.00.

Richardson, John S. *Resource Literature for Science Teachers.* (rev. ed.) Columbus, Ohio: Publications Office, Ohio State University, 1961. 108pp. $2.00.

*Scientific Experiments in Chemistry.* Washington, D.C.: Manufacturing Chemists Association, 1825 Connecticut Ave., N.W., 1958. Guide sheets for 31 experiments requiring students to devise their own procedures and to draw original conclusions.

## Secondary — MATHEMATICS

Enrichment in mathematics should be directed at reaching a deeper understanding of the basic concepts of mathematics. Talented students should recognize mathematics as a logical discipline worthwhile in itself, as an instrument of physical and biological science, and as a tool of growing importance in the social sciences. An enrichment program in mathematics should include consideration of recent developments in the theories and applications of mathematics as well as a study of the historical development of mathematics.

A shelf in the school library that includes some of the classics of mathematical literature, some books on recreations and puzzles, college texts in advanced mathematics, and some works on the history of mathematics can be a source of enrichment to talented students.

These students should be encouraged to work independently on topics of interest which are not included in the regular mathematics program. Library research and preparation of papers and projects on topics ranging from non-Euclidean geometry to the mechanics of computers can be successfully carried out by interested students. Contests and fairs often act as motivation for research and preparation of projects.

Talented students should experience the satisfaction of thinking through problems, of analyzing problems and developing a logical formula for solution, rather than spending their time on repeated drill in procedures.

**Enrichment Activities and Ideas:**

1. Conduct seminars for small groups who want to study topics and areas in mathematics beyond the scope of the curriculum.
2. Study the history of mathematics.
3. Make a study of the lives of great mathematicians.
4. Become acquainted with the idea of the men whose names are commonly met in mathematics: Pythagoras, Euclid, Archimedes, Ptolemy, Newton.
5. Make a study of mathematics in the theories of astronomy of Copernicus, Galileo, and Kepler.
6. In the history of mathematics study Thales' conception of proof.
7. Study the history of the calendar and calendar reform.
8. Read parts of the work of Descartes, Pascal, and Liebniz.
9. Study the philosophy of mathematics—such topics as continuity, infinity, the concept of limit, etc.
10. Work with such topics as: theory of sets, symbolic logic, other geometries and algebras, graphs of inequalities, graphs of unusual functions and relations.
11. Study the law of probabilities in various types of gambling.
12. Study some of the uses of mathematics in music, science, navigation, art, economics.
13. Study the theory of electronic computers.
14. Make a study of mathematics in some aspect of astro-navigation.
15. Study the industrial applications of mathematics.
16. Study map projections—representing three dimensions in two.
17. Study techniques of surveying. Do some elementary practical surveying.
18. Investigate the field of topology—study the Koenigsburg Bridge problem.
19. Make a study of elementary statistics.

20. Practice types of graphing, such as multiple line graphs, identifying relationships between variables, graphing curves, discontinuous quantities, etc.

21. Interpret statistical tables as found in publications of governmental agencies, for example, the Bureau of Labor Statistics, the Census Bureau, etc.

22. Collect and analyze data from the local community.

23. Make statistical studies on such topics as the year's attendance for each student in class, the time spent on buses each day, amount of money spent on recreation each month by seniors, or any measure in which there will be a variation about some central tendency.

24. Work on a statistical project or problem more difficult than the other class members are doing.

25. Study number systems which are not positional (e.g., Roman numerals) and bases other than ten.

26. Perform operations in these other systems.

27. Work with and develop shortened methods of computation in the mathematics courses.

28. Work at the famous problems of geometry: squaring the circle, duplicating the cube, or trisecting an angle.

29. Deal independently with such topics as: Boolean Algebra, electrical networks, Rolle's theorem, the theorem of the mean, Newton's method of approximating inactional roots of an equation, approximation of the definite integral by the trapezoidal methods and by Simpson's Rule.

30. Consider recent developments in quantitative procedures.

31. Engage in group study projects on such topics as: measurement of time; different number systems; mathematics in astronomy, finance, or science; geometry in nature; mathematics and industry; comparative costs of schools, social agencies, playgrounds, prisons, reformatories.

32. Investigate calculations using logarithms and the slide rule. Use the slide rule and know how to perform some of the basic operations.

33. Learn the Pythagorean theorem.

34. Conduct experiments in probability.

35. Use laboratory to experiment in measurement to establish the facts of theorems. Confirm afterward by formal proof.

36. Make use of the laboratory for experiments on falling bodies, pendulums, etc., to establish mathematical principles.

37. Measure the height of a TV tower or flagpole.

38. Make statistical studies and graphs of school and community data: fund drives, PTA membership drives, budgets, competition between school groups, production records of school garden project, sports records, test scores, local farm or industrial output, population growth, conservation projects.

39. Conduct a credit union, bank, or insurance company for pupils in the school.

40. Prepare reports for class presentation on: interesting highlights in the history of mathematics; famous mathematicians; arithmetic in sports and games, cooking, clothing design and production, building construction, farming, personal and family budgets, transportation; geometry in art and architecture.

41. Demonstrate solutions of special problems to class.

42. Report on money of other lands.

43. Investigate measurement by constructing a homemade quadrant.

44. Develop techniques and skills in indirect measurement using shadow reckoning.

45. Publish a school mathematics journal.

46. Publish articles on mathematics subjects in school publications.

47. Publish pamphlets on interesting mathematics subjects to arouse interest in Mathematics Club.

48. Arrange bulletin board displays of interest to mathematics pupils.

49. Arrange hall exhibits on mathematical subjects.

50. Maintain a permanent exhibit of mathematical models and instruments.

51. Draw or paint designs using geometric figures.

52. Design and construct models for use in mathematics classes.

53. Make model of the curve of swiftest descent. Investigate and discuss the cycloid.

54. Construct a probability board, make a study of the theory of probability, curve of normal distribution, Pascal's triangle and the bionomial expansion.

55. Construct instruments and use in the solution of problems: such as hypsometers, in solving problems involving heights; clinometers, in solving problems involving angles of elevation and depression; angle mirrors, in the laying out of angles and mapping problems.

56. Read books dealing with recreational mathematics which require advanced thinking. For example, *One, Two, Three—Infinity* by George Gamow.

57. Create puzzles, magic squares, quizzes.

58. Maintain in the classroom a file of contest problems.

59. Visit laboratories to see electronic computers in operation and research foundations to see work with atomic energy.

60. Take field trips to banks, stock exchange, grain exchange, lumber mill, clearing house, mint, IBM office, site of building excavation.

61. Prepare mathematical projects for exhibits and fairs.

62. Arrange annual mathematics tournaments designed for pupils of unusual ability in this field.

63. A Mathematics Club provides opportunities for young people to hear from authorities in the field, as well as from other students who are investigating interesting sidelights in mathematics or who are doing special work beyond their school requirements.

64. Arrange for guest speakers to talk with student groups about applications of mathematics concepts to problems in atomic energy, economics, social sciences, biological sciences, business, industry.

65. Encourage participation in contests.

66. Arrange a mathematical symposium to discuss modern mathematical ideas and their applications.

67. Deliver to the mathematics club a paper on a specialized topic.

68. Encourage participation in community activities requiring applications of knowledge of mathematics, such as a mineralogical society.

69. A member of the community (engineer, etc.) may be willing to help students with special interests on projects.

70. Put on a mathematics program for the PTA or some such group to let parents know what is going on in mathematics.

71. Keep accounts for student fund drives, Bank Day, or savings bond sales.

72. Serve as cashiers for school functions.

73. Budget such activities as the school newspaper.

74. Become a mathematics teacher's assistant. Help other students, help arrange and loan math equipment and materials, etc.

75. Help in the selection of books for the mathematics library or collection.

76. Subscribe to *Mathematics Student Journal.*

77. Find out about vocations in mathematics.

**Helpful References:**

Carnahan, Walter H. (editor). *Mathematics Clubs in High Schools.* Washington, D.C.: NEA, National Council of Teachers of Mathematics, 1958. 32pp. 75¢.

Glenn, William H., and Donavan A. Johnson. *Exploring Mathematics On Your Own.* New York: Doubleday, 1961. 303pp. $4.50. Covers numeration systems, number patterns and theory, theory of sets, topology, Pythagorean theorem. Reference volume and sourcebook for enrichment.

Graham, L. A. *Ingenious Mathematical Problems and Methods.* New York: Dover Publications, 180 Varick St., 1959. 237pp. $1.45. Collection of problems which can be adapted for various skills teaching, particularly with gifted students.

Hogben, Lancelot. *Mathematics in the Making.* New York: Doubleday, 1961. 320pp. $9.95. Historical evolution of mathematics, profusely illustrated.

Peck, Lyman. *Secret Codes, Remainder Arithmetic and Matrices.* Washington, D.C.: NEA, National Council of Teachers of Mathematics, 1961. 54pp. $1.00. Enrichment or supplementary material for superior students; includes references for teachers.

Rosenbaum, R. A., and L. J. Rosenbaum. *Bibliography of Mathematics for Secondary School Libraries.* Middletown, Conn.: Wesleyan University, 1959. 23pp. Free. Annotated bibliography for students who wish to go beyond the high school curriculum.

Schaaf, William F. *Recreational Mathematics: A Guide to the Literature.* Washington, D.C.: NEA, National Council of Teachers of Mathematics, 1958. 143pp. $1.20. Bibliography for different areas of mathematics; famous problems, geometric recreations, etc.

*Solid Shapes Laboratory.* Sturdy colored cardboard panels for assembly into simple or complex polyhedra. Includes instructions, diagrams, definitions, and applications for fundamental principles. Science Materials Center, 59 Fourth Ave., New York 3, N.Y. $5.95.

## Secondary — MODERN LANGUAGES AND LATIN

The modern language program can be enriched by extension of student experiences in each of the four main areas—listening, speaking, reading, and writing. The language laboratory can provide for student practice at different levels. Where there is no language laboratory, the abler students can independently use a tape recorder and practice with tapes at a more advanced level than that at which the class is working. Recordings can also be used for further practice, checking of comprehension, and introduction of material not presented in class.

Supplementary reading will be included in any enrichment program in foreign languages. Modern literature, classics, poetry, the short story, novel, and essay all have a place in the reading program. The value of current foreign-language periodicals and newspapers should not be overlooked. Some students may wish to develop a good reading knowledge of the language in one or two specific areas, such as poetry, science, history, or politics. Groups of students with similar interests may meet to plan and discuss their reading projects and present research papers, short reports, and original compositions to be analyzed by the group. Language clubs, suitable field trips, foreign-language films, filmstrips, and slides, recordings of characteristic music and especially songs of the country, and visits with persons speaking the foreign language (preferably with native skill) are all sources of enrichment.

Practically all of the following enrichment activities can be adapted to whatever modern language is desired—French, Spanish, German, Italian, Russian—and many of them can be used in Latin.

### Enrichment Activities and Ideas:

1. Learn expressions of courtesy for use in different situations.
2. Lead the class in conversations and in question-and-answer periods.
3. Listen independently to language recordings.
4. Engage in a discussion on a political topic of current importance.
5. Make oral reports.
6. Report to the class on some of the famous museums in the country of study.
7. Prepare a talk to accompany a slide presentation.
8. Report on a scientific project in the foreign language.
9. Report on a contemporary novel.
10. Report on the philosophy of an important writer.

11. Memorize favorite poems.
12. Recite poetry or prose passages to class.
13. Give a short talk analyzing a famous painting.
14. Read difficult selections aloud to the class.
15. Retell an imaginary (or an actual) visit to an historic site in the foreign country.
16. Retell a previously read article or story to the class.
17. Interview consul or local residents who speak the language.
18. Learn the national anthem of the country or some country where the language is spoken.
19. Teach songs in the foreign language to the class.
20. Dramatize scenes from the history of other lands.
21. Plan simple dramatizations of narrative selections, anecdotes, or short stories to present before the class.
22. Act out short scenes from a good story or novel.
23. Dramatize familiar situations or scenes such as: a restaurant scene, meeting a friend at a football game, going shopping, asking for a date, etc.
24. Plan dramatic productions for school assemblies.
25. Present selections from famous plays.
26. Dramatize fables, myths, and historical scenes in Latin.
27. Dramatize Roman festivals.
28. Lead choral reading in the foreign language.
29. Produce radio programs in the foreign language.
30. Quiz-type programs may be carried on in the classroom.
31. Conduct a panel such as "Meet the Press," with one student playing the role of a political figure from a foreign country.
32. Prepare and enact a U.N. session. Speech made in English may be simultaneously translated into foreign language.
33. Write simple stories or essays in the foreign language.
34. Write short compositions on the lives of great painters, composers, literary figures, etc.
35. Write a composition on work done in other classes—English, music, science, etc.
36. Students may develop and edit a school foreign language newspaper.
37. Write brief anecdotes, announcements of interest to the group, reports of new books or plays to be posted as a wall newspaper in a foreign language class.
38. Write scripts for a radio broadcast in the foreign language.

39. Write letters in the foreign language to agencies of the country requesting information.

40. Correspond with students abroad.

41. Correspond with other students studying the foreign language.

42. Write to the U.N. for material written in French, Russian, Spanish, or whatever language desired.

43. Review foreign-language movies, broadcasts, or plays.

44. Translate popular songs into the foreign language.

45. Practice taking notes from taped lectures or readings.

46. Keep a journal or diary in the foreign language.

47. Create crossword puzzles in the foreign language.

48. Read newspapers, bulletins, travel folders, and magazines in the foreign language.

49. Subscribe to a foreign-language magazine or newspaper.

50. Read textbooks used in high schools in the foreign country.

51. Read famous documents in the foreign language: U.N. Charter in French, Magna Carta in Latin.

52. Read more difficult material in contemporary literature and modern drama of the country of study.

53. Read some of the classics of the countries' literature (in translation if necessary).

54. Read to develop a firm knowledge of the foreign language in one or two fields—art, music, science, politics, history, etc.

55. Read librettos of operas in the foreign language.

56. Develop anthologies of favorite poems in the foreign language.

57. Study the works of a modern poet.

58. Prepare special reports for the class on foreign art, music, literature, youth activities, schools, religion, mining, transportation, regional costumes, ancient ruins, political status, scenery, relations with the United States.

59. Engage in study projects requiring research on a foreign country's national heroes, historical figures and events, legends and folk art, geographical characteristics, role in the modern world, natural resources, industrial development, farming methods, points of view as expressed in magazines and newspapers.

60. Make a study of some important historical period of the country.

61. Prepare a "Who's Who" of the country of study.

62. Make a study of some school of painting or type of architecture.

63. Make a study of famous artists of the various countries.

64. Identify famous works of art from prints or pictures.

65. Make a study of modern composers of the country.

66. Become acquainted with the works of various composers of the country.

67. Make a comparative study of the music composed by Debussy, Fauré, and Sibelius, in connection with the story of *Pelleas and Melisande.*

68. Find out about sports in the country of study.

69. Learn something about interesting villages or regions of the country.

70. Plan a future trip to the countries where the language is spoken. Arrange an itinerary.

71. Prepare travel maps.

72. Make a map of the capital of the foreign country.

73. Make mural and pictorial maps of the countries where the language is spoken.

74. Prepare a mural illustrated with advertising signs using foreign words or names.

75. Draw or paint reproductions of government seals or commercial trademarks containing foreign mottoes or names.

76. Make Christmas cards with greetings in the foreign language.

77. Collect pictures and travel posters of the country of study.

78. Collect and learn proverbs in the foreign language.

79. Collect foreign stamps.

80. Collect foreign catalogs, fashion magazines, various types of periodicals, etc.

81. Collect various coins and paper money, postage stamps, university bulletins, passports and identity cards, telegram blanks, money order blanks, theatrical posters and programs, pictures of interiors of schools and public buildings, etc.

82. Prepare bulletin board exhibits of some area of the country's culture.

83. Bulletin board or other exhibits may center about a specific subject such as contemporary painting, furniture, architecture, or prominent writers and their works.

84. Organize or participate in a foreign language club.

85. Foreign Language Club activities can include: visits to museums, churches, cinemas, cultural centers, restaurants, theatres, concerts, and the opera; the giving of concerts and plays; talks in the foreign language by distinguished persons; the collecting and displaying of postcards, magazines, tickets, stamps, coins,

books, etc.; additional singing of more difficult songs; and the presentation of films and slides.

86. Lead classmates in singing and games.

87. Play games such as "Twenty Questions" in the foreign language.

88. Invent games which will make drill work in grammar fun instead of a tedious chore.

89. Learn to make change in the foreign money.

90. Use a set of recorded lessons in the foreign language to test ability to understand the spoken language.

91. Tutor less advanced pupils.

92. Gather menus from foreign restaurants and steamships.

93. Learn to order meals in the foreign language.

94. Listen to operatic arias in the foreign language. Use text of the lyric.

95. Listen to short-wave broadcasts, French Canadian Radio, or broadcasts from Mexico and other nearby Spanish speaking countries.

96. Visit foreign restaurants, bookshops that specialize in publications from specific countries, tourist offices, etc.

### Helpful References:

Alden, Douglas (editor). *Materials List for Use by Teachers of Modern Foreign Languages.* New York: Modern Language Association, 70 Fifth Ave., 1959. 85pp. 50¢.

Holton, James S., and others. *Sound Language Teaching.* New York: University Publishers, 1961. 249pp. $5.50.

Huebner, Theodore. *Audio-Visual Techniques in Teaching Foreign Languages.* New York: New York University Press, 1960. 163pp. $3.25.

Huebner, Theodore. *How to Teach Foreign Languages Effectively.* New York: New York University Press, 1959. 198pp. $3.00.

Johnston, Marjorie. *Modern Foreign Languages in High School.* U. S. Office of Education Bulletin 1958, No. 16. Washington, D.C.: Supt. of Documents, Government Printing Office, 1960. 50pp. $1.00.

O'Connor, Patricia. *Modern Foreign Language in High School: Prereading Instruction.* U. S. Office of Education Bulletin 1960, No. 9. Washington, D.C.: Supt. of Documents, Government Printing Office. 50pp. $1.00.

Stack, Edward M. *The Language Laboratory and Modern Language Teaching.* New York: Oxford University Press, 1960. 149pp. $3.95.

# THE LIBRARY AND ENRICHMENT

Use of the classroom, school, or community library can be one of the most universal and effective aids to enrichment. It has been stated that this is a means by which the gifted student can often make his own curricular differentiation. This assumes, however, skillful guidance by teacher and librarian, and access to a great variety of materials. These materials would include excellent books written for children and youth (good modern books as well as the classics); early contact with adult books and often college textbooks; magazines, pamphlets, encyclopedias, dictionaries, reference tools of all kinds. Many libraries also include collections of non-book materials, such as motion pictures, filmstrips, slides, photographs and color prints, disc and tape recordings, and files of community resources.

The able learner is often a good reader. Skill in reading, however, does not always mean breadth of reading experience, and the bright student's absorption in certain topics may even tend sometimes to narrow his choice of books. But there is always opportunity to capitalize upon specific interests, then broaden them; to channel recreational reading into individual reading programs which will enlarge the experiences of the student and deepen his appreciations. Suggestions by the librarian and attractive library displays will often stimulate interest in a scientific topic, an historical period, a geographic region, a world problem, and the like.

The library of course encourages browsing and recreational reading, but it is more than a center for reading guidance and a source of informational materials. It also provides facilities for independent study and the development of research skills. Here the student learns to locate background material for written or oral reports, to consult original as well as secondary sources, to use advanced bibliographical techniques, to take good notes, to outline. He is challenged to locate, read widely, analyze, synthesize, evaluate, appreciate. He discovers that it is possible to read different types of material at different rates—to skim quickly over some and to read slowly to absorb others.

Many of the almost 1200 activities and ideas already presented in this book include use of the library. The *Helpful References* at the end of each subject-matter area also include many lists for independent reading in that subject. Here are some additional activities, however, which involve the library. Some of them can be initiated by the librarian or the teacher, and others will be carried on by the student himself.

### Library Activities and Ideas:

**The librarian or teacher can:**

1. Aid students to develop personal libraries and home reference libraries in hard-cover or paperbound editions. This involves the student in choosing titles for particular interests and purposes, comparing editions, using library tools, and becoming acquainted with bookstores.
2. Help students to use reference materials and techniques for locating information.
3. Broaden student interests through the discovery of books in unfamiliar fields.
4. Assist the student in discovering new books and articles in a field of his interest.
5. Teach students to browse in the library, but to request direction when needed.
6. Encourage students to make collections of pamphlets and pictures.
7. Open certain of the adult sections to able students before they reach the usual minimum age for using these.
8. Hold joint meetings of teachers and school or community librarians to coordinate library materials with curriculum planning.
9. Stimulate interest in books by reviews of new books and by classroom talks by the librarian.
10. Encourage wider reading by means of attractive exhibits which feature both newly published books and established classics.
11. Prepare book displays for special occasions—holidays, Book Week, sport seasons, school events, and the like.
12. Offer weekly story hours for different age groups. These could include creative writing groups to which students bring original stories and poems for helpful criticism and recognition of merit.
13. Set up a "Book Cafeteria," perhaps commencing with paperbacks. (There are now close to 15,000 paperback titles available for serious reading and for teaching.)

14. Make a collection in the library of student scrapbooks dealing with specific topics, project books, classroom newspapers, examples of creative writing done by students.

15. Start a local branch of the Teen Age Book Club (approved by *Scholastic Magazine*) to obtain paperbound copies of good books. For information, write to Teen Age Book Club, 33 West 42nd St., New York 36, N. Y.

16. Set up Vacation Book Clubs to encourage students' reading during the summer months.

17. Arrange for regular book discussions in the library by Literature Clubs.

18. Organize a Rare Books Club, a Book Worm Club, a Library Helpers or Library Assistants Club.

**Students can:**

19. Serve as a library research person for a class, going to the library for information needed by the group.

20. Serve as a reader's advisor to other pupils.

21. Form committees to do group research in the library.

22. Plan and collect a personal library.

23. Organize a reading program around a hobby or a vocational interest.

24. Keep individual records of reading, with critical or analytical annotations.

25. Write reviews of new (or other) books, to be mimeographed and distributed to other students.

26. Act as library assistants, helping to arrange and alphabetize catalog cards and perform other duties.

27. Assume responsibility for the classroom library.

28. Take a field trip to a university or specialized public library.

**References:**

The *American Library Association Bulletin* for February, 1958, deals with "The Library and the Gifted Child" and contains a number of good articles on this topic.

Newark School Librarians Association. *The Librarian and the Gifted Child.* Newark, N. J.: Public Schools, 1953. 32pp. $1.00. Out of print, but may be available in libraries.

# AUDIO-VISUAL MATERIALS IN ENRICHMENT

An enriched classroom environment will include not only a wealth of reading material but also a great variety of those materials which do not depend upon reading to convey their meaning. These audio-visual materials may, with some slight overlapping, be grouped as follows: *projected materials*—motion pictures, filmstrips, slides, overhead transparencies, opaque projections; *pictorial and graphic materials*—flat pictures, photographs, color prints, charts, maps, posters, graphs; *three-dimensional materials*—realia, objects, models, specimens, exhibits, displays; *audio or recorded material*—tape and disc recordings (often in the form of listening or language laboratories), radio, television; *direct experiences*—field trips, use of resource persons, demonstrations, experiments.

These instructional materials can vitalize and enrich the curriculum for all students, as well as for the able learner. They can, according to the *Encyclopedia of Educational Research,* make the following special contributions to education: a concrete basis for conceptual thinking, a high degree of interest, ability to make learning more permanent, a reality of experience which stimulates self-activity, development of a continuity of thought (especially true of motion pictures), growth of meaning and thus increased vocabulary development, the provision of experiences not easily obtained through other materials.

Although audio-visual materials are frequently described as "mass media," they are also valuable for individualizing instruction. Projected materials can be shown to large or to small groups, but they can also be viewed by one or two students at a time. The listening or language laboratory permits highly individualized as well as group use. Even in the regular classroom, the use of earphones makes it possible for individuals or small groups to listen to recorded or broadcast material. Radio listening and television viewing can be individual as well as group activities, and this is true of direct teaching programs as well as supplemental experiences. There is much current interest in the use of teaching machines or automated instructional devices for self-instruction as well as for group teaching.

Like the librarian and the library, the audio-visual coordinator and the instructional materials center are important resources for enrichment. A large school or school system will have well-organized facilities of this sort, but even a small school can have a central collection of teaching materials. This may involve simply assembling in a central location some of the materials and equipment which may now be in various classrooms. If there is a school library, it could house these materials and perhaps be organized to include an instructional materials workroom or area which can be used by teachers and (upon assignment) by students.

Such a center and workroom might include audio-visual equipment and materials; a collection of local and national catalogs and source lists of teaching materials; a collection of picture and graphic materials; facilities and equipment for preparing bulletin board displays and exhibits; a large work table; a typewriter, duplicator, and paper cutter; art supplies and scrap materials; and the like. The responsibility for supervising such facilities might be assumed by someone from the school office, the librarian, or rotated among teachers or responsible upper-grade students.

No one school will have an entire range of instructional materials and equipment. It might be helpful, however, to use the following check lists[1] to determine what you now have available and to suggest additions to your teaching resources.

### (1) Materials for Learning Experiences

Textbooks
Supplementary books
Reference books, encyclopedias
Magazines, newspapers
Documents, clippings
Duplicated materials
Programmed materials
  (self-instructional)

Motion picture films
TV programs
Radio programs
Recordings (tape and disc)

Flat pictures
Drawings and paintings
Slides and transparencies
Filmstrips
Microfilms, microcards
Stereographs

Maps, globes
Graphs, charts, diagrams
Posters
Cartoons

Puppets
Models, mockups
Collections, specimens

Flannelboard materials
Chalkboard materials
Construction materials
Drawing materials
Display materials

---

[1] Brown, James W., and Richard B. Lewis. "Experiences, Materials and Equipment for Learning," *National Elementary Principal*, January, 1961.

### (2) Equipment for Learning Experiences

Motion picture projectors
  (16mm or 8mm)
35mm filmstrip projectors
2″ x 2″ slide projectors
3¼″ x 4″ slide projectors
Opaque projectors
Transparency projectors
  (overhead type)
Projection screens
  (fixed and portable)

TV receivers
Radios (AM and FM)
Record players
Public address systems
Tape recorders
Language laboratories

Still cameras (35mm,
  2¼″ x 2¼″)
Motion picture cameras
  (16mm or 8mm)

Duplicators (spirit and
  mimeograph)

Chalkboards (preferably
  magnetic)
Bulletin boards
Flannelboards (feltboards)
Equipment for preparing
  simple materials:
  Lettering sets
  Paper cutters
  Dry-mounting presses
  Graphic materials

Individual viewers for slides
  or filmstrips
Microprojectors
Microfilm readers
Microscopes
Self-instructional devices
  ("teaching machines")

Since audio-visual materials and methods are an integral part of the teaching situation, they appear in many of the enrichment activities and ideas suggested in this book for the various elementary and secondary subject areas. Able students can be involved, however, in many of the following aspects of the use of these materials:

(1) *Selection*—learn to use source lists and catalogs, order forms and letters of request. Develop awareness of purpose of utilization, context in which materials are used, and inter-relationships of various types of material.

(2) *Preview*—examine, view, or listen individually or as a small preview committee for the class group.

(3) *Utilization*—help to plan the use of materials, prepare oral or written introductions, formulate questions to be answered after viewing or hearing material, draw up vocabulary lists, suggest follow-up activities. Students can learn to obtain, set up, and operate various types of projectors and other audio-visual equipment.

(5) *Evaluation*—take leadership roles in group discussions following use of audio-visual materials, prepare oral or written reports based on such use, and the like.

(6) *Administration*—help to build collections of teaching materials (especially pictures, realia, free and inexpensive materials, files of community resources), and to organize and catalog these and other collections.

(7) *Production*—make photographic prints and transparencies, motion pictures, handmade slides and overhead transparencies, tape recordings; prepare bulletin board displays and exhibits; make chalkboard and feltboard presentations; give demonstrations.

### Helpful References:

There is a large and rapidly increasing number of excellent books, pamphlets, yearbooks, manuals, and other publications in the field of audio-visual methods and materials. In addition, many of the professional magazines in the subject-matter fields carry monthly columns or departments devoted to new instructional materials. The two references listed below are "sources of sources" and include most of these publications described above. They will help the classroom teacher to locate references and materials appropriate to his own teaching field.

Rufsvold, Margaret I., and Carolyn Guss. *Guides to Newer Educational Media.* Chicago: American Library Association, 1961. 74pp. $1.50. Guide to catalogs and lists of films, filmstrips, slides, records, radio, television; also professional organizations and journals providing information about these media.

Williams, Catharine M. *Sources of Teaching Materials.* (rev. ed.) Columbus, Ohio: Bureau of Educational Research and Service, Ohio State University, 1960. 39pp. 50¢. Revised every two years; lists the leading books and pamphlets on utilization of audio-visual materials, and gives catalogs and source lists for many of these materials.

# SELECTED BIBLIOGRAPHY

Barbe, Walter B., and Thomas M. Stephens (editors). *Educating Tomorrow's Leaders.* Columbus, Ohio: Division of Special Education, Ohio Department of Education, 1961. 156pp. Free. Reports of Ohio programs, workshops, demonstration classes, and lectures. Philosophy of education of gifted, evaluation of recent research, suggestions for enrichment.

Birch, Jack W., and Earl M. McWilliams. *Challenging Gifted Children.* Bloomington, Ill.: Public School Publishing Co., 1955. 49pp. $1.00.

*Challenging the Able Learner.* Primary Grades Curriculum Bulletin 301, 1957. 112pp. Elementary Grades Curriculum Bulletin 401, 1957. 81pp. Cincinnati, Ohio: Public Schools. $1.00 each.

Copley, Frank O. *The American High School and the Talented Student.* Ann Arbor: University of Michigan Press, 1961. 124pp. $3.95.

*Curriculum Adaptations for the Gifted.* Albany N. Y.: Bureau of Elementary Curriculum Development, New York State Education Department, 1958. 52pp. 20¢.

Cutts, Norma, and Nicholas Moseley. *Teaching the Bright and Gifted.* Englewood Cliffs, N. J.: Prentice-Hall, 1957. 268pp. $4.25.

Darrow, Helen F., and R. Van Allen. *Independent Activities for Creative Learning.* Practical Suggestions for Teaching, No. 21. New York: Teachers College, Columbia University, 1961. 110pp. $1.25.

DeHaan, Robert F., and Robert J. Havighurst. *Educating Gifted Children.* Chicago: University of Chicago Press, 1957. 276pp. $5.00.

DeHaan, Robert F., and Jack Kough. *Helping Children With Special Needs* (Elementary Edition). Vol. II, Teacher's Guidance Handbook. Chicago: Science Research Associates, 1956. 200pp. $3.25.

Everett, Samuel (editor). *Programs for the Gifted: A Case Book in Secondary Education.* 15th Yearbook of the John Dewey Society. New York: Harper & Bros., 1961. 299pp. $5.50.

Fliegler, Louis A. (editor). *Curriculum Planning for the Gifted.* Englewood Cliffs, N. J.: Prentice-Hall, 1961. 414pp. $6.75.

Freehill, Maurice F. *Gifted Children: Their Psychology and Education.* New York: Macmillan, 1961. 412pp. $5.50.

French, Joseph L. (editor). *Educating the Gifted: A Book of Readings.* New York: Henry Holt & Co., 1960. 555pp. $7.50; text edition, $5.50.

Henry, Nelson B. (editor). *Education for the Gifted.* 57th Yearbook, Part II, National Society for the Study of Education. Chicago: University of Chicago Press, 1958. 420pp. $4.00.

Jenkins, Gladys Gardner. *Helping Children Reach Their Potential: A Teacher's Resource Book.* Chicago: Scott, Foresman & Co., 1961. 200pp. $2.00.

Kough, Jack, and Robert F. DeHaan. *Helping Students With Special Needs* (Secondary School Edition). Vol. II, Teacher's Guidance Handbook. Chicago: Science Research Associates, 1957. 204pp. $3.35.

Lewis, Gertrude M. *Educating the More Able Children in Grades Four, Five, and Six.* U. S. Office of Education Bulletin 1961, No. 1. Washington, D.C.: Supt. of Documents, Government Prniting Office, 1961. 84pp. 35¢.

Myers, R. E., and E. Paul Torrance. *Invitation to Thinking and Doing.* Minneapolis, Minn.: Perceptive Publishing Co., Box 4086, University Station, 1961. 54pp. $1.10, with Teacher's Manual. Creative activities for elementary school children.

NEA Project on the Academically Talented Student—Publications. Washington, D.C.: NEA, Publications-Sales Section, 1201 Sixteenth St., N.W. The following booklets:

*Art for the Academically Talented Student in the Secondary School,* 1961. 112pp. $1.00. (Pub. with NAEA.)

*Elementary Education and the Academically Talented Pupil,* 1961. 96pp. $1.00. (Pub. with Dept. of Elementary School Principals.)

*English for the Academically Talented Student in the Secondary School,* 1960. 128pp. $1.00. (Pub. with NCTE.)

*Mathematics for the Academically Talented Student in the Secondary School,* 1959. 48pp. 60¢. (Pub. with NCTM.)

*Modern Foreign Languages and the Academically Talented Student,* 1960. 89pp. $1.00. (Pub. with MLA.)

*Science for the Academically Talented Student in the Secondary School,* 1959. 64pp. 60¢. (Pub. with NSTA.)

*Social Studies for the Academically Talented Student,* 1960. 84pp. $1.00. (Pub. with NCSS.)

Oliver, Albert I. (editor). *Guiding Your Gifted.* Philadelphia: Educational Service Bureau, School of Education, University of Pennsylvania, 1954. 89pp. $1.00.

Otto, Henry J. *Curriculum Enrichment for Gifted Elementary School Children in Regular Classes.* Austin: University of Texas, 1955. 136pp. $2.00.

Passow, A. Harry, and others. *Planning for Talented Youth.* New York: Bureau of Publications, Teachers College, Columbia University, 1955. 84pp. $1.00.

Scheifele, Marian. *The Gifted Child in the Regular Classroom.* Practical Suggestions for Teaching, No. 12. New York: Bureau of Publications, Teachers College. Columbia University, 1953. 84pp. 95¢.

Shertzer, Bruce (editor). *Working With Superior Students.* Chicago: Science Research Associates, 1960. 370pp. $6.00.

Sumption, Merle R., and Evelyn M. Leucking. *Education of the Gifted.* New York: Ronald Press, 1960. 499pp. $6.50.

Witty, Paul. *Helping the Gifted Child.* Better Living Booklet 5Y-937. Chicago: Science Research Associates, 1960. 46pp. 60¢.

Woolcock, William Cyril. *New Approaches to the Education of the Gifted.* New York: Silver Burdett, 1961. 112pp. $2.00.

Zirbes, Laura. *Spurs to Creative Teaching.* New York: G. P. Putnam's Sons, 1959. 354pp. $5.75. Anecdotal descriptions of curriculum enrichment.

# USER'S NOTES

**Additional Activities and Ideas:**

## Additional Activities and Ideas — 2

## Additional Activities and Ideas — 3

## Additional References: